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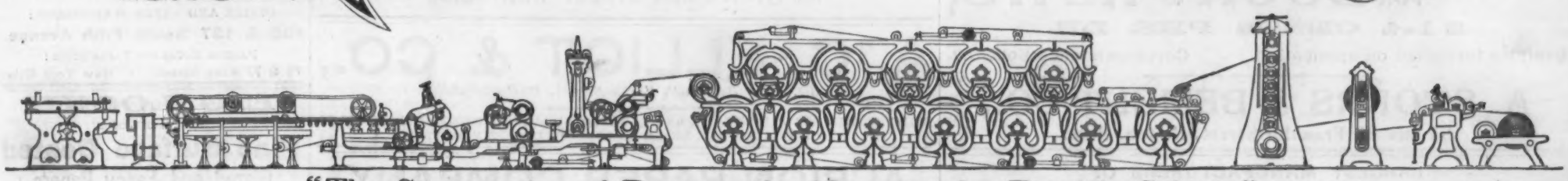


"The Consumption of Paper is the Measure of a People's Culture."

VOLUME XXIII.—NO. 10. NEW YORK, MARCH 10, 1894. WHOLE NUMBER 1036.

Trade Topics.

Iron Column Construction.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

By W. H. Weston.

In the construction of buildings for mill purposes and also for store houses, offices and stores, the use of cast iron in columns to support heavy floors and walls is the poorest of methods. This can not only be seen by consideration of the subject, but by the experience at all large fires in buildings where cast iron has been used to a considerable extent, either for inside supports or for iron fronts. At such places there has always been a collapse of the entire structure, the destruction of the buildings being much more complete than is usual in other construction.

Danger from fires is not the only disadvantage which is attached to the use of cast iron in building construction. The liability to flaws and hidden weakness in such castings as are used for this purpose gives a constant source of danger in its use, and this must always be guarded against by excessive size, or by a large factor of safety in order to try and cover all liability to failure under load. The amount of money saved by the use of cast iron columns instead of wrought iron is a poor excuse when the structure gives way and whole floors fall, and this failure might have been wholly or partly averted by some other construction.

Although the crushing strength of cast iron is double that of wrought iron, yet the larger factor of safety required to insure against failure gives as much weight for a certain load, and this brings the difference in expense between the two kinds of columns to only that between castings and wrought iron riveted construction per pound. Ordinary building castings if bought at a low figure per pound are usually not worth one quarter what is paid for them, for they are all subject to flaws, flaw holes, sand and dirt streaks, shrink strains, unequal thicknesses, &c., all of which or any one of which in a casting will render its use very dangerous. Any or all of these defects may be located in a single column and yet give no outward indication of existence.

These defects are usually in a great measure due to the use of a poor quality of scrap iron, thus giving hard, dirty, sandy, crystalline castings. The formation of blow holes or air bubbles is usually due to improper methods of pouring and not sufficient chance for the escape of gases from the mold Shrink strains are often caused by defective molds, the cooling of the metal not going on uniformly on all sides as it should. Variation in the thickness of the iron in two sides of a column often happens, by the core not being in proper place. It is either put in carelessly, or if set in the right position at first it may rise out of its exact position by the buoyancy of the molten iron. This uneven thickness of iron in the two sides of a column is a very serious element of danger under a heavy load, as the greater compression in the thin side permits the column to deflect sideways, thus making it liable to total failure.

In regard to making column castings they should be invariably cast on end, and the fact that they are ordinarily cast in a horizontal position is the cause of many defects in existing work. It is cheaper to make them in this way rather than in a vertical position, and this probably accounts for such a method in common use, notwithstanding the fact that such castings are of an inferior quality. The casting of such forms on end necessitates a pit for the reception of the molds; but this is the only expense of account. In the vertical casting the cores are more certain to be kept in a central position, thus rendering the thickness of the metal equal all round. Next there is less liability to initial strains, because usually the chances for radiation are more uniform on all sides, and the iron cools more evenly; and again, the pouring of the metal in the vertical position gives a better chance for it to settle steadily and evenly, and produces a casting in which the iron is more homogeneous all round. When fitted for vertical casting a larger number of molds can be placed and poured in a given time.

In building, where cast iron columns cannot be avoided only the best should be taken; but in general they should not be made use of at all. The only way in which such castings could be produced to anywhere near approximate wrought iron or steel in safety would be to use a high grade of ore and the most carefully detailed method of casting them, and this would entail such an expense as to bring the cost per pound up to that of steel riveted construction. In the next place cast iron as a material in fireproof buildings is one of the poorest that can be made use of on account of its certainty to crumble under even a moderate amount of heat, and especially so if any water touches it while hot.

In regard to the most reliable metal supports, the production of suitable and varied shapes of wrought iron and steel for construction purposes has come to such a point that they can be very efficiently employed in a large proportion of building. In the choice between the use of wrought iron or steel probably the latter is the best metal to employ as it is more uniform than iron and its strength, as given in column construction, is about 20 or 25 per cent. more than that of wrought iron per square inch of area. In open column construction the **Z** bar makes the best shape to employ usually as it renders less riveting necessary and secures lateral strength with a minimum amount of material, and the form makes it easy to connect the columns up in many different ways. The open column construction for exposed positions has advantages over the closed form in the matter of painting, which can be readily accomplished on the whole surface of the former. As to ultimate strength, the corrugated circular column is undoubtedly that which will support the greatest load per inch of area of metal section; but in any place where dampness is liable to reach the inside it is not a proper form to use. In making connections for beams, &c., the circular column gives nowhere near as much chance for them to be readily and strongly made as does the square or open form. The failure of these columns under load is usually by deflection laterally or by bulging of the metal between rivets or flanges, and thus some warning signs are usually discoverable by careful inspection, whereas in cast iron there is not likely to be any appearance of breaking down until the total giving way of the whole support. This uncertainty in regard to the power of a cast iron column makes it an improper metal to use for this purpose.

Recovering Wood Fibre.

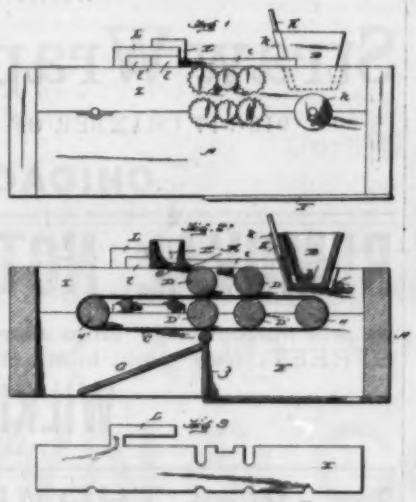
The machine herewith illustrated is intended for recovering wood fibre from caustic liquors without the use of an undue or large quantity of water for washing the pulp.

It consists in the combination with a suitable frame, a supply hopper therein, a set of coacting pressure rolls supported in the frame below the supply hopper, a traveling carrier arranged to travel between the upper and lower rolls of the coacting pressure rolls, a tank for receiving the liquid situated beneath one part of the carrier, and a water supply tank at or near the discharge end of the traveling carrier for the purpose of supplying water to the compressed pulp after it has passed between the pressure rolls and the liquor extracted therefrom.

Figure 1 is a side elevation, and Fig. 2 is a longitudinal central sectional view of the machine. Fig. 3 is an enlarged side view of the upper part of the frame, showing the removable bearing rails in which the supply hopper, the upper rolls of the coacting pressure rolls, and water tank and scraper knife are supported, to permit ready and convenient access to any part of the machine.

A designates the main or supporting frame, which may be of any suitable or preferred construction adapted for the purpose of sustaining all the operative parts or mechanisms for compressing and extracting fibre from the liquors present therein. At the top side of this frame A, and preferably near one end thereof, there is a supply hopper B, into which the fibre is deposited by any suitable conveyor or in any other manner. This hopper is supported on the frame in a manner to permit of the ready removal of the hopper, as will presently appear.

C is a traveling conveyor or apron arranged within the sides and ends of the frame A, and situated in a horizontal position on a plane beneath the hopper B, so as to receive the fibre from the hopper. This



Machine for Recovering Fibre.

apron or conveyor is made of wire, although any other material suitable for the purpose of permitting the liquor or liquid matter to pass through the conveyor after it has been extracted or pressed from the fibre may be used.

D, D', are the set of coacting pressure rollers, D being the upper roller or rollers, and D' being the lower roller or rollers, of the set of coacting pressure rollers. This set of coacting rollers may consist of only two rollers (an upper and lower roller); but it is preferred to employ a series of four rollers, two being arranged above and the other two below the apron. This conveyor or apron C is arranged to travel or pass between the upper and lower rollers of the set of coacting pressure rollers, whereby the apron is made to convey the pulp or bark from the hopper between the upper and lower rollers, and thus the pulp or bark is subjected to pressure between the upper and lower rollers to force out the liquid present or contained in the pulp.

The pressure rollers are situated at one side of the supply hopper, and at the other side of the pressure rollers from the supply hopper is arranged a tank E, which is provided, on the side adjacent to the pressure rollers, or in its bottom, with a discharge opening, *e*. This tank E is to be supplied with water, in order to be discharged into the fibre after it has been pressed by the rollers, so that the fibre will contain sufficient water, or be in a semi-fluid state, for the purpose of conveniently pumping it back to the mill by any suitable form of pumping mechanism.

In the lower part of the frame, below the traveling conveyor, and in vertical line with the supply hopper, is a tank F in which the caustic liquid or other liquid matter extracted from the wood fibre is adapted to flow when it is pressed or extracted from the fibre, and this receiving tank F has a vertical wall, *f*, at its inner end, which serves to isolate the receiving tank F from the discharge chute G, which is inclined downward from the wall *f* of the receiving tank and arranged below the discharge end of the conveyor or apron C to receive the fibre from the latter after it has been pressed by and between the coacting pressure rolls.

The conveyor or apron C is of the endless variety, and it is supported at its ends by the power driven and idler rollers H, H', around which the endless conveyor or apron passes, and the shafts of these rollers H, H' are suitably journaled in bearings supported on the sides of the frame A, as shown, the shaft of the power driven roller H being provided with a pulley, *h*, around which passes a belt for communicating power to the roller H and thus to the apron.

On the sides of the frame A are fitted the removable bearing rails I, I, of the machine, which are notched or provided with caps which fit over the shafts of the driving and idler rollers H, H', and the shafts or trunnions of the lower rolls D' D' of the set of coacting pressure rollers. The bearing rails are fitted between the end pieces of the frame A, to which they are connected by slides or ways to prevent lateral or sidewise displacement of the bearing rails, and they are prevented from vertical movement and held down in position by any suitable fastenings. These bearing rails are further provided with the boxes or journal bearings for the shafts or trunnions of the upper rolls D, D, of the set of coacting pressure rolls, over which shafts or trunnions are fitted the caps *i*, *i*, which hold the rolls D, D, in place and which permit the ready removal of the rails from their bearings in the rails I, I.

The supply hopper B of the machine is fitted in place between the inclined ways *j*, *j*, shown by full lines in Fig. 2 and by dotted lines in Fig. 1, the ways *j* being on the inner sides of the rails I, I, so that the hopper can be readily lifted out of position between the rails I, I. The hopper is further provided in its bottom or on the side adjacent to the roll D with an outlet opening, *b*, the area or size of which can be regulated by means of the gate valve K, which is fitted to slide between the ways or strips, *k*, *k*, attached to one side of the hopper.

The supply tank for the water E is held in place by means of the lugs or flanges *l*, *l*, provided at the ends thereof, and fitted in place in the openings formed in the retainers L, L, fixed to the upper side of the bearing rails I, I, suitable keys or wedges *l'*, *l'*, being inserted between the retainers L and the lugs *l* on the supply tank to hold the latter firmly but detachably in position.

In order to keep the upper roll D of the set of pressure rollers clear, and prevent the fibre from adhering to the surface of the roll, the supply tank E is provided with a scraper or knife, M, which projects from the lower part of the hopper until it terminates very close to the surface of the roll D.

The rolls D, D, D', D', constituting the set of pressure rolls, are geared together so that they all rotate or turn in one direction, to effect the compression of the fibre and thus extract the liquid matter therefrom.

Power is communicated by a belt to the driving pulley of the shaft roller H to move the endless conveyor or apron, and the pressure rolls are also set in motion in any convenient way. The fibre and its caustic liquor are supplied to the hopper B in any appropriate way, while water is supplied to the tank E. To feed the fibre and its contained liquid matter to the machine, the gate valve of the supply hopper B is opened, and the fibre with its liquid is allowed to pass through the opening *b*, in regulated quantities, and thus deposited upon the conveyor or apron C. This conveyor transfers the fibre to the pressure rolls, and as the matter is carried through the machine by the apron or conveyor, the liquid matter is extracted or pressed therefrom. The liquid flows readily through or from the apron into the tank at the bottom of the machine, while the solid particles of wood fibre are carried over the discharge end of the apron and deposited on the inclined discharge chute, so that the fibre and liquid are mechanically separated and discharged separately from the machine.

It will not be necessary to use any, or at most very little water to effect the separation of the liquid matter from the solid matter of the wood fibre; but to enable the fibre to be conveniently pumped back to the mill, a small quantity of water is supplied to the solid particles of fibre passing between or from the pressure rolls onto the inclined discharge chute. The water thus supplied by the tank E to the fibre after the liquid has been extracted therefrom serves to reduce the fibre to a semi-fluid condition for its convenient transportation, by pumping, back to the mill.

In order to provide a proper support for the apron or conveyor, and to prevent it from sagging, a series of two or more small sustaining rollers, N, are placed at one side of the set of coacting pressure rolls and are loosely journaled in bearings on the sides of the frame A of the machine.

Application of Payments for Account.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

Where a partial payment is made by a person indebted on more than one account the general rule, acknowledged in all cases, is that: 1. The person paying may, at or before the time of payment, prescribe the application of the payment; 2. If he omits to do so, the creditor may apply it as he pleases; 3. If he neither applies the payment, the application devolves on the Court, which will make such appropriation as is reasonable and equitable. These rules apply to the case of a payment made to an attorney representing the claims of several creditors whose debts are presently due, as well as to the case of a person owing several debts to the same person; and if he does not designate the debt to which he wishes it to be applied the attorney may apply it.

As the payment is voluntary on the part of the debtor, he may fix the terms upon which he pays; and if the creditor accepts the payment, he is, by such acceptance, bound to the conditions which the debtor has appointed, even though at the time he expressly refused to admit them; if, therefore, the debtor pays with one intent, and the creditor receives with another, the intent of the payer shall prevail. Thus, where money was sent to the creditor, with notice of the account on which it was paid, and the creditor refused to accept it on those terms, and refused to admit the payment as on that account, yet did receive and retain the money, it was decided that by so doing he was concluded by the appropriation which he had been directed to make.

So absolute is the debtor's right of appropriation that though it is a general rule that a payment on account of a debt bearing interest is to be applied first in discharge of the interest, yet the director may direct the application to so much of the principal, in exclusion of the interest; and the creditor, if he receives the money, is bound to apply it accordingly. This power of the debtor may be completely exercised without any express direction given at the time.

A direction may be evidenced by circumstances, which may demonstrate the application of a payment as completely as words could demonstrate it; thus a positive denial of one debt and acknowledgment of another, with the delivery of the sum due upon it, would be conclusive; the fact that the money paid agreed in amount with one of the debts, or that at the time of the payment the evidence of one of the debts was given up, would be a strong circumstance; in cases of this kind, upon proper evidence, the intention of the debtor or of both parties is a question of fact for the jury.

There are some particulars also in which the indication of the debtor's intention, afforded by the nature of the case, assumes the character of an absolute legal presump-

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tion, not to be counteracted except by an express agreement of the parties. Thus a general payment is always to be referred to a debt which is due, in preference to one not due, because it is not to be supposed that a debtor intends to make a deposit and not a payment; and to a debt due by the payer absolutely and as principal, rather than one due contingently and collaterally, or held as collateral security; yet by the express agreement of the parties a payment may be appropriated to a debt not due, or to an unlawful debt.

It is to be observed, also, that where a note, bill or other security for money to be received at a future time or property to be converted into money is given, the time when the application takes effect is the time when the article becomes a payment, and this may be at once if the property is expressly received as absolute payment, but if the property is assigned as collateral security for several debts, the creditor may apply the money realized to any of the notes due at the time the money is received. If, however, there is only one debt incurred at the time when the property is assigned out of which the creditor is to pay himself, and before the money is received another debt is contracted, the application must of course be to the former, and the creditor could not apply the money to the latter without express permission to do so.

It is a settled rule that the source or fund from which a payment is made will direct the appropriation—that is, when the money has come from a particular fund it must be applied by the creditor in relief of the source from which the fund arises. Thus, where one who was a creditor on mortgage and by simple contract received a sum of money from an assignee of the mortgagor of part of the mortgaged premises, in consideration of the release of such part from the mortgage, he was held bound to apply the money to the mortgage debt. The principle adopted by the common law appears to be the reasonable one—that the ownership of the money determines the right of appropriation. Before the money is paid, that is, while it belongs to the debtor, he may direct any application that he pleases, and any application directed by him during that period will prevail; but if he pays the money without directing any appropriation the money becomes absolutely the property of the creditor, and it being his own he may do with it what he will. To allow a debtor to follow and control the application of money of which the entire ownership is in another would be inconsistent with the reason and analogies of the common law.

Correspondence.

Miami Valley.

[FROM OUR REGULAR CORRESPONDENT.]

DAYTON, Ohio, March 7, 1894.

There is little appreciable difference in the condition of business this week. Collections are fair and trade is receiving a slight spring impetus. However, it is almost imperceptible, and calamity croakers may have an opportunity for venting opinions for a long while before the grand rush of business begins. It is admitted that after such a dearth of orders a future plethora may be confidently expected.

The Wardlow-Thomas Paper Company, of Middletown, has at last placed its machinery in its new paper bag factory, and the hum of industry is pleasing to note. This firm is one of the most widely known in the manufacturing enterprises of the country, and the late addition in the starting of the paper bag industry is valuable. There are four machines in operation, and three more are on hand to be used. The factory starts with a capacity for manufacturing 500,000 bags per day, and before a few months have elapsed the firm will double its force (now fifty) and the amount of its product. With the facility for the manufacture of not only bags but the material, it has great advantages over many other enterprises of this kind, and with business men of long experience and undaunted ability a success in the new venture is assured.

It is understood that this firm seriously contemplates changing one of the machines in its large paper mill to manufacture tag board and oyster bucket paper, and will then place machinery in the bag factory to turn out the finished product.

The Dayton Typothetæ held its annual meeting the other night at the residence of the president, L. D. Reynolds, the blank book manufacturer and publisher, 519 West Second street. The association was entertained at an elaborate dinner served in magnificent style. After the transaction of the regular business, two new members were elected, viz.: Irvin C. Sanders and the W. W. White Paper Company. The old officers were unanimously re-elected to serve the ensuing year. Then followed the dinner, the tables being prettily decorated. President Reynolds delivered an able annual address dealing with many points of interest to the printer and manufacturer. Charles H. Simms, manager of the Dayton *Times* and *Evening News*, acted as toastmaster, introducing the following named well-known members of the trade, who responded:

"The Press—How to Run a Newspaper"—L. C. Walker.

"After Dinner—one grain of pepsin will dissolve one thousand grains of food"—Irvin C. Sanders.

"White Paper and Black Ink"—Albert M. Eyer.

"The Printer's 'Devil'—His Origin"—J. W. Johnson,

"The Transition State in the Newspaper Corner of Our Profession"—John G. Doren.

All of the toasts were responded to in a felicitous manner, although instruction blended with mirth very creditably.

The Hartjé Brothers Paper Company, of Steubenville, Ohio, is enjoying a good trade. Notwithstanding the dullness of the times this mill has been busy continually, and to judge from present appearances will continue in the rush of trade for some time. Its orders on express paper are plentiful.

The latest improvement about the spacious and handsome new mills of the W. W. White Paper Company, which abuts on four different streets in Browntown, is the addition of a ponderous wire sign, which conspicuously commands attention, on the roof. The mills do not present such a grand appearance from the various railroad trains, which pass several hundred times daily, and this fact is much regretted. From Washington street the main buildings stand out like a veritable castle, and the real extensiveness of the plant is from that point apparent at a glance. A ramble over the plant through every department quite fatigues one. By this time everything about the mill is in working shape, including the manufacture of fine writing paper, bristols, tablets and commercial printing.

Morris Nixon, of the Nixon Paper Company, Richmond, with headquarters at Dayton, visited Pittsburg and other points East during the past week.

Work on the Champion Coated Paper Company's new mill at Hamilton is progressing nicely. This will be one of the most complete plants of its kind in the country, and the only one west of Massachusetts. The Miami Valley and Ohio, and in fact all Western States, will find in it an advantage greatly to be appreciated.

R. N. King, president of the Stilwell-Bierce Manufacturing Company, and family met with a mishap the other night which luckily did not cost them their lives. While out driving the horse became frightened, and the driver was unable to control it. The horse ran at breakneck speed from Mr. King's residence on West Second street to a point east of Main street on Second, narrowly missing an electric car, and at length smashing into a telegraph pole. The occupants were then assisted out, but fortunately were not hurt, while the carriage escaped material damage.

Despite reports that the sale of the bag factory of the Friend & Forgy mill to the Perrine Paper Company has not been confirmed, it certainly has, although an effort is on foot to declare the sale illegal.

The Dayton stockholders of the Weston Paper Company again visited the plant at Greenfield the past week.

Frank Nixon, of Richmond, Ind., called at Dayton this week in the interests of the Nixon Paper Company.

Willard Smith, of the Haas Paper Company, this city, is in Indiana and Virginia.

The Dayton Paper Novelty Company is making preparations for the introduction of a number of novelties in advertising, &c., which will be of general interest to the trade. This firm has just received the contract for supplying John Finzer & Brothers, of Louisville, Ky., with 5 pound smoking tobacco boxes. The consideration throughout the year amounts to from $18,000 to $20,000, and is a significant contract, identical to that closed by the same company the previous year.

There are rumors flying hither and thither on the warm spring zephyrs that W. A. Powell and Charles F. Gunckel, the paper manufacturers, intend to start a newspaper at Middletown. This is news, decidedly, and the local press of that city is nonplussed.

The death of Mrs. Henry Snider, wife of the paper manufacturer, mentioned in last week's PAPER TRADE JOURNAL, is generally deplored. Heaven's decree came without warning and reclining on a lounge she passed away as peacefully as though relapsing into a slumber. Members of the family observing that her head fell limp upon one side of the pillow thought that she had fainted. When they reached her side the spark of life had fled, and a physician who was at once summoned pronounced death due to paralysis of the heart. Mrs. Snider was a lady of much personal worth, her cordial address and radiant nature dispersing sunshine among all who knew her. The bereaved husband is almost prostrated, as during all of his recent business adversities she had given him the comfort and solace of a dutiful wife.

Paper manufacturers were interested in the meeting of the Ohio Canal Association this week at Columbus, a large number of them being present.

The association had a hearing before the committee on public works and lands of the Ohio Legislature, and a strong plea was entered against the abandonment of any part of the Miami and Erie Canal, as proposed in the Ramp Bill. This bill was formulated by Cincinnatians who consider that the southern end of the canal could be of more practical use than for the purpose of navigation. The protest comes from staunch paper manufacturers and many others. Ex-Senator Richardson, of Cincinnati, showed that 500 tons of freight per day are discharged between Mohawk and Sycamore streets on the canal in Cincinnati, and that the value of the lands is possibly $5,000,000.

R. H. Wallace, of Chillicothe, enlarged upon the work in progress in canal building in all parts of the world and urged that it would be unwise for Ohio to dispense with this property at a time when other States and countries are building new canals. He believes that a ship canal project is feasible and that it will be seriously considered in a few years. He considers the property which Cincinnati wants as a gift to be worth several millions of dollars.

Others spoke in the same strain, including Howard Friend, of the G. H. Friend Paper Company, West Carrollton; Chas. D. Mead, of the Mead Paper Company, Dayton; Col. W. P. Orr, identified with paper making industries at Piqua; Maj. George B. Fox, of the Friend & Fox Paper Company, and others. Among the paper manufacturers present were: R. H. Cochrane, F. N. Quale, Toledo; Colonel Orr, H. K. Wood, George C. Williams, Henry Fish, Piqua; J. H. Friend and C. D. Mead, Dayton; C. M. Harding, of the Harding Paper

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Company, Franklin; J. K. Thomas, of Wardlow-Thomas Paper Company, Middletown; J. C. Clement, Hamilton; Senator J. C. Richardson, Major Fox, W. J. Tangeman, of the Tangeman Paper Company, and James Cullen, Cincinnati; Thos. Welch, Carthage, and R. H. Wallace, Chillicothe.

M. V.

Boston.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
67 FEDERAL STREET,
BOSTON, March 8, 1894.

By way of introduction I must comment upon the weather.

Now the weather so far this month has been so delightful that comment is really deserved.

Everybody seems to be in touch with the weather, and in consequence everybody is showing new life and exhibiting cheerfulness in keeping with the pleasant warm days which have prevailed for the past week or more.

Business is responding to the change of feeling brought about by the spring-like influences, which give promise of flowers to bloom later.

Since the month opened trade has picked up quite noticeably in this market although the improvement seems to be shared more liberally by some firms than others, due in part possibly to the different lines of goods handled, as the demand for all grades of papers seldom becomes active at the same time.

Paper mill supplies are moving more freely of late; but the movement is not of heavy volume. Paper stock is subject to more inquiry, but the inability of importers to meet the views of prospective buyers regarding prices prevents the filling of some orders. Under such conditions domestic rags come in and for the time being fill the wants in many cases.

The steamer Venetian, from London, arrived early in the week with smallpox among the crew, and it was reported that the contagion was due to rags aboard. Fortunately, however, the steamer carried no rags, the only paper stock in the cargo being thirty-five bales of waste papers and ninety-two coils of old rope. The steamer was detained at quarantine for twenty-four hours, fumigated and then proceeded to her dock for discharging. At first the longshoremen refused to work on board the steamer, fearing that they might contract the dreaded disease; but after long consideration and some persuasion the men went to work and the cargo was unloaded.

Visitors representing the many interests of the paper business have been more numerous this week and this is an indication of returning confidence. Some came to buy goods and some came to sell, and all seem to view the outlook as more favorable than for some time past. As the metropolis of New England Boston occupies a prominent position in the paper trade—a fact that is strongly emphasized by the great number of trade representatives who have occasion to visit this market from week to week in connection with business relating to the paper and pulp industry, box boards, chemicals and mill supplies.

The list of visitors for the past week includes: Charles R. Milliken and W. J. Morton, of Portland, Me.; Mr. Winn, of Livermore Falls; Me.; E. S. Gedney, of Jay, Me.; H. G. Bixby and Oscar Hartwell, of Nashua, N. H.; ex-Governor Cheney, of Manchester, N. H.; O. C. Robertson, of Hinsdale, N. H.; C. S. Wheelwright, of Claremont, N. H.; Mr. Burgess, of Berlin Falls, N. H.; A. C. Moore and J. W. Flint, of Bellows Falls, Vt.; B. F. Colburn, of Bradford, Vt.; G. F. Burton, of Windsor Locks, Conn.; Henry Hurlbut, of Lee, Mass.; Charles S. Mayo, of Lawrence, Mass.; C. H. Southworth, South Hadley Falls, Mass.; John D. Carson, of Dalton, Mass.; Mr. Farley, of Farley, Mass.; W. N. Caldwell and L. F. Hayward, of Holyoke, Mass.; James Wallace and G. B. Holbrook, of Springfield, Mass.; James Ramage, of Monroe Bridge, Mass.; James Logan and Mr. Williams, of Worcester, Mass.; Charles C. Callender, of Glendale, Mass.; A. N. Lowe, George Crocker, and H. I. Wallace, of Fitchburg, Mass.; Eben Webster, of Orono, Me.; Mr. Eaton, of Lee, Mass.; Mr. Moser, of Scaghticooke, N. Y.; S. M. Kennedy and Mr. Schlishter, of Philadelphia; H. Guggenheimer, Albert Salomon, L. V. Walkley, W. H. Parsons and David M. Drury, of New York.

Mr. Lowden, patentee of the several paper mill appliances bearing the name of "Lowden," is meeting success in placing his regulators on paper machines. It is a source of much gratification to him to have paper manufacturers using his regulators give evidence of their appreciation of the merits of his invention. Some weeks ago Mr. Lowden put two of his pressure regulators onto the paper machines at Wyman, Flint & Sons' mill, at Bellows Falls, Vt., and in response to an inquiry concerning the working of the regulators the paper manufacturing firm wrote as follows:

BELLOWS FALLS, Vt., March 1, 1894.

Mr. James J. Lowden, Boston, Mass.:

DEAR SIR—Yours of the 28th ult. at hand and noted. The pressure regulators that you applied on our two paper machines some two months ago are working to our entire satisfaction; they do even better than what you represented. We are convinced that they save us a large per cent. of fuel, besides drying our paper evenly. We can without hesitation recommend them to all who are in want of a fine regulator.

We remain, yours truly,
WYMAN, FLINT & SONS.

Such an indorsement ought to be convincing evidence of the merits of Lowden's pressure regulators. DELESDERNIER.

Holyoke.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., March 8, 1894.

Trade conditions are unchanged this week. The movement of finished goods has been about the same as was noted last, which shows that business has undergone no change for better or worse. Orders are rather slack, and those of any size are a minus quantity. The mills are all running, to be sure, and paper is being made; but it will be some time before the busy days of the past will return to us. Prices are not very satisfactory, and the margin for profit is very narrow. Some of the manufacturers say that their collections are very slow, and in some cases the customers have to be pushed before a settlement can be had.

Hon. William Whiting, treasurer of the Whiting Paper Company, was interviewed recently upon the present business situation and its causes, and his opinion will be of interest. Said Mr. Whiting: "Almost all manufacturing has been stimulated to overproduction. If all mills ran full time they would produce a considerable per cent. more than could be consumed. Therefore, in the next three years excess of competition and short products will make profits light. By that time the natural increase of demand, coupled with the fact that capital has been deterred by small returns from investing in new mills, will make profits fairly good. Finally, in the last three or four years of the decade profits will be high. Then will come a rush of new mills; overproduction and stagnation will naturally follow."

The clause in the Wilson bill governing the duty on paper will affect the manufacturers of fine writings pretty sensibly, and quite a number of mills in New England which have been making paper for fine correspondence will be sufferers to quite an extent. This branch of the business has been enabled to prosper largely by the ample protection of the McKinley bill. The Wilson bill as drawn provides for reduction of 20 to 25 per cent. on the duty. The makers of these goods have competed with foreign manufacturers and have been able to drive the latter's products from our markets, but even with the benefit of free raw material they cannot keep on doing business with such a reduction of the tariff. The result of Congressional action will be watched with great interest.

At the last annual meeting of the Riverside Paper Company this annual report of the condition of the company's affairs was made: Fixed capital, $500,000; capital paid in, $500,000; Assets: real estate, land, water power, buildings and machinery, $575,315; cash and debts receivable, $95,-100; manufactures and merchandise, $93,-448; total, $763,864. Liabilities: Capital stock $500,000; debts, $221,975; reserve for depreciation, $41,889; total, $763,864.

Beginning with the first of the month the calender girls employed by the Beebe & Holbrook Paper Company had their pay cut down 25 and 35 cents a day, and the sorters had a cut of 15 per cent. This made the girls mad clear through, and for a time a strike was imminent, but they finally decided that they could not afford to be thrown out of work, and their ruffled feelings were calmed.

William Whiting has spent the week in Chicago attending to business connected with the recent fire, which destroyed a large quantity of paper owned by his company. His son, S. R. Whiting, has been with him.

C. C. Jenks, president of the Whiting Paper Company, is traveling through the South for the benefit of his health. He is at present at Galveston, Tex.

The Whitmore Manufacturing Company has just submitted this annual report to the State officials: Capital stock, $25,000; capital paid in $25,000. Assets: Machinery, $25,000; cash and debts receivable, $70,830; manufactures and merchandise, $95,073; total, $190,904. Liabilities: Capital stock, $25,000; debts, $69,300; profit and loss and reserve for depreciation, $96,603; total, $190,904.

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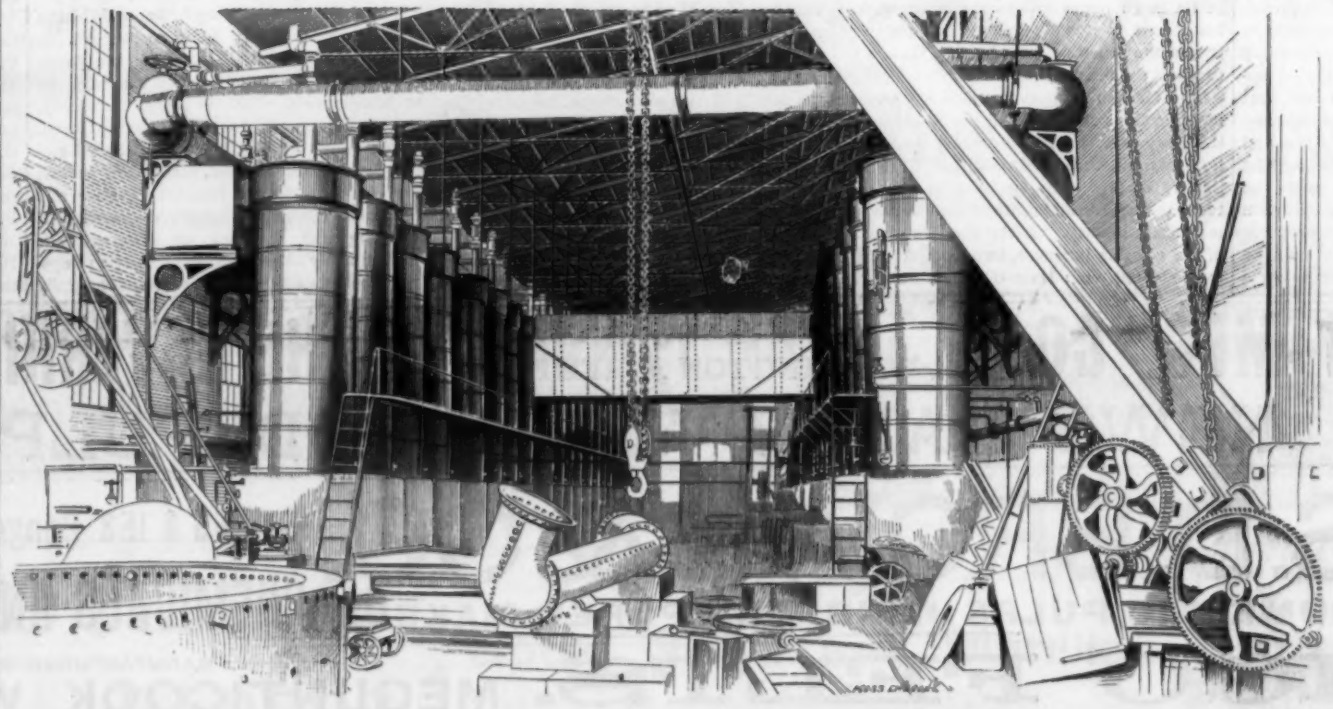

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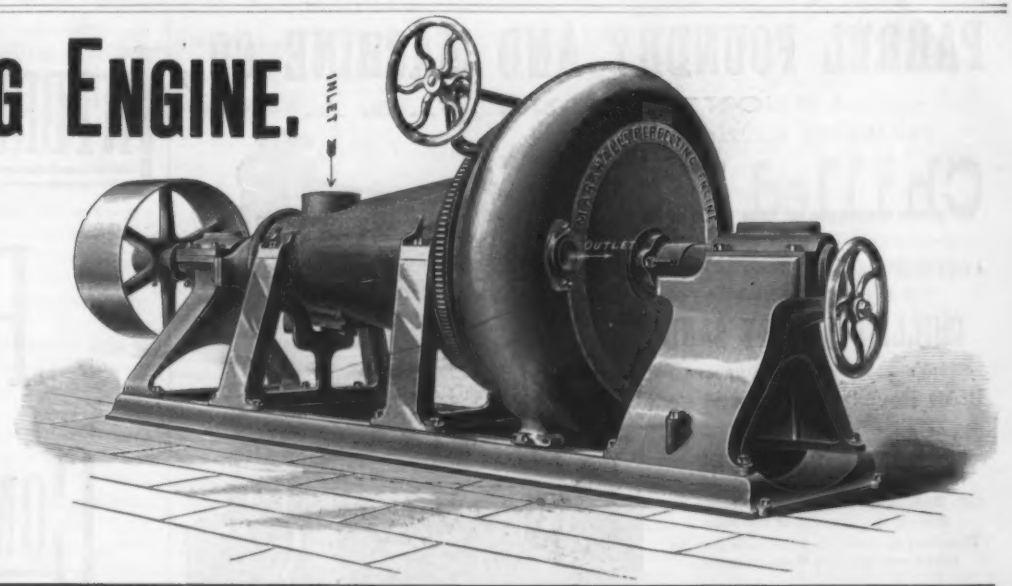

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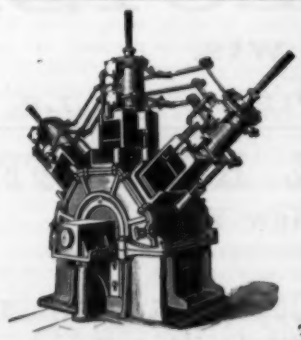

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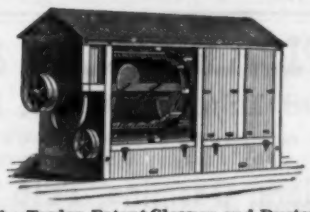

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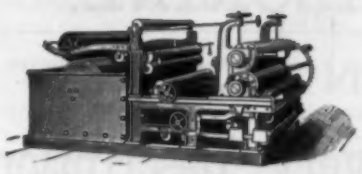

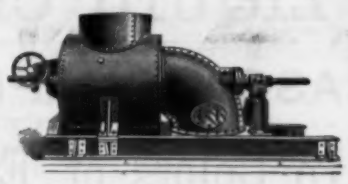

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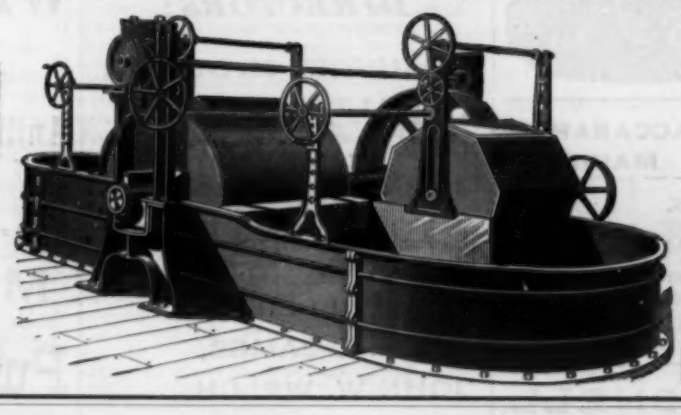

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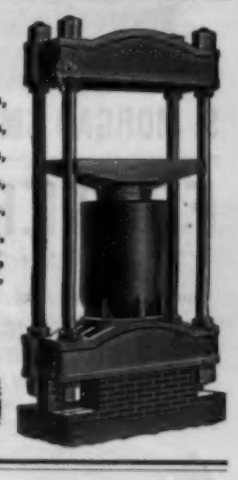

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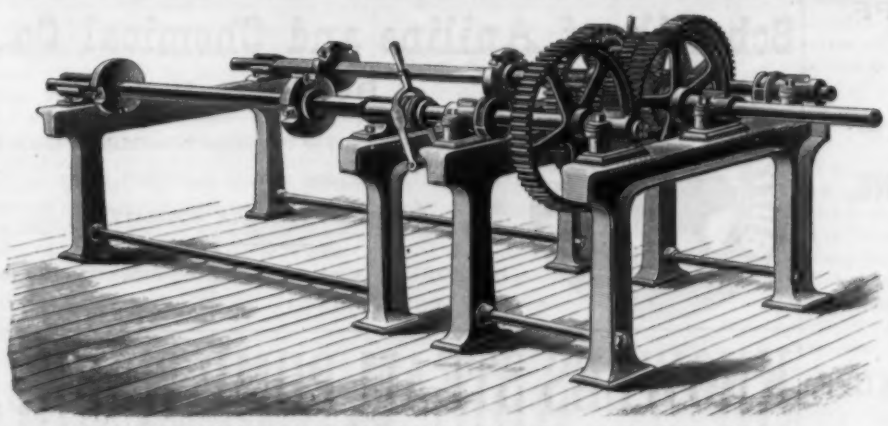

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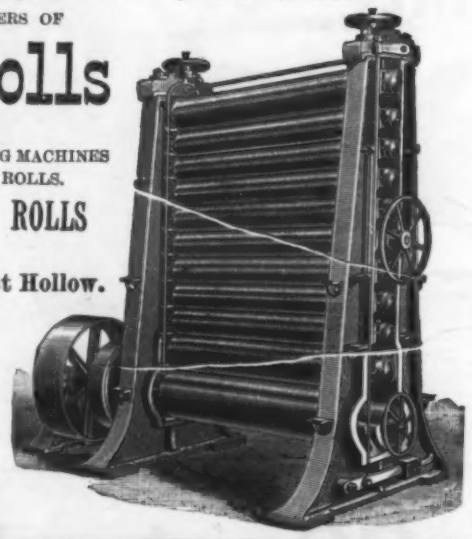

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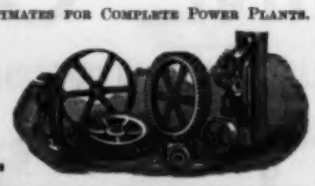

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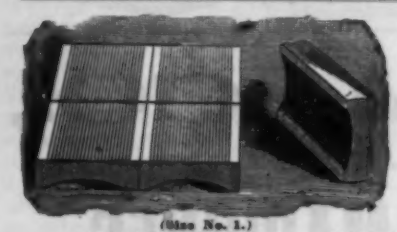

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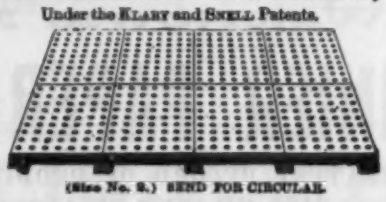

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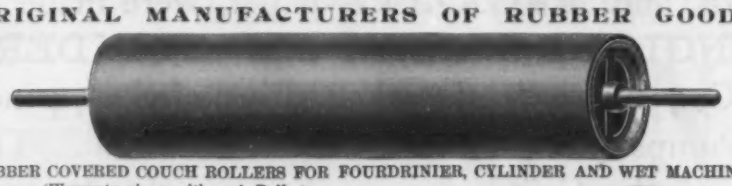

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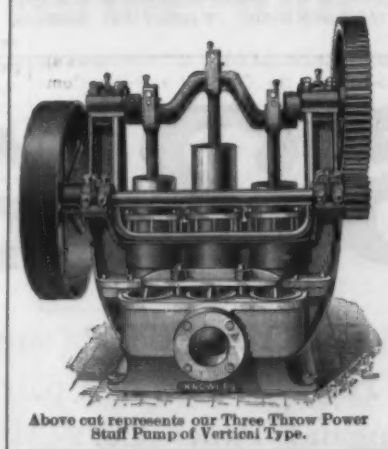

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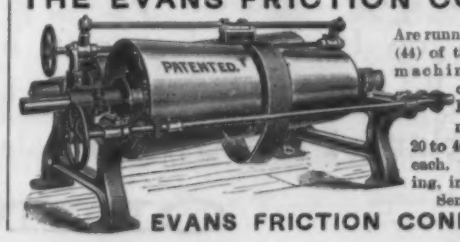

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EVANS FRICTION CONE CO., 85 Water St., Boston, Mass.

Holyoke Envelope Company's factory will have its annual ball Easter Monday evening, March 26.

F. E. White, of Watervliet, Mich., has been visiting old friends at South Hadley Falls.

There is plenty of water in the river and there will be no trouble from low water for some time to come. H.

Great Britain.

[FROM OUR REGULAR CORRESPONDENT.]

LONDON, England, February 23, 1894.

Really there are signs and tokens in the land of something of a revival in trade. Clearing house returns, inland traffic accounts and all of the customary indications are a trifle healthier, and the trade barometer seems actually to be veering around toward "set fair." There was an increase both in imports and exports in the first month of the year, as compared with January, 1893. We have spent over $26,000,000 more on foreign produce than in that month, and it is to be noted that more than half of this increase is in raw materials for textile manufactures. Lancashire's desiderata are cheap cotton and cheap food, and it looks as if she were going to get both this year. Commerce seems convalescent, but the symptoms are not sufficiently favorable for the doctors to say that the patient is altogether out of danger of a relapse. Yet a little prosperity for John Bull is not a bad thing for the world in general, and if you will nail down your weather vane of a tariff to some point or other it will assist matters. Of course we had rather that it pointed to Wilson than to McKinley, but "in the name of the Prophet" fix it up somehow and keep it from wobbling.

As for the paper trade in particular it does not come out of the January reports very brilliantly. Comparing quantities and values we have either been buying cheaper or taking in cheaper stuff. Also we have sent away 137 cwts. more than in January, 1893, and have received about $6,000 worth less. As far as I can gather from inquiry the year has opened in a very so-so way. The mills are working full time, and orders are coming in; but, as a prominent merchant put it to me this morning, "prices are simply paralytic," and moreover I hear rumors of a stupendous failure pending, which will give the trade a jolt of the very nastiest.

The prospectus of the Electro-Chemical Company was issued to-day. I have already spoken of the successful electrolytic manufacture of soda and bleach at Snodland, in Kent, and this company is the result. The capital is $1,000,000, and it is intended to work the Snodland process on a more extensive scale in the neighborhood of the coal and salt fields of the North of England. Colonel Holland, one of the inventors, pointed out to me recently several great improvements on the Snodland plant, which can be made in fixing up the new concern, and of course it will save money in the matter of cost of fuel and raw material. In addition to manufacturing, licenses to use the process will be sold to paper makers and others. It is a big thing; "there's millions in it," as Colonel Sellers says. Some smart man on your side should be able to have a corner in it, for the paper men are bound to take the process up, and in the United States, at any rate, the trade will be glad to have this opportunity of kicking the Alkali Union. I have for the last year or two kept a watchful optic on Snodland, and I am ready to stake my existence that this is a good thing. A better lot of directors were never got together, and their names will inspire confidence at this side at any rate. Four paper makers, Lewis Evans, of Dickinson's; Martin Pirie, of Alexander Pirie & Sons; T. M. Dunster, of Hook's (Snodland), and J. H. Walter (Norwich), and Leopold Field, of the great soap and candle firm, constitute the board. I don't always take a rose colored view of things, but I have unbounded belief in this.

You have got a Michigan University and a professor called Dr. Fleming Carrow whose words of wisdom are reaching us. He asserts that black ink on white paper is ruining the eyesight of the people. The future book, he says, and probably the future newspaper must be printed in white ink on a green ground. All right. We can manage the tinted paper easily enough, but what is the printer going to do about his white ink and how on earth in the atmosphere of the printing office is he going to keep his white ink clean? It can't be done here anyhow. The most solid bit of experience I have garnered in is that it is impossible to run a printing office without snuff and cockroaches. There is a paper here, the *Westminster Gazette*, which preserves its readers' sight by printing with black ink on green paper and from my point of view the combination is just about as refreshing as soot on a grass plat. The idea is old enough. Good old Montaigne says that he always held a green glass between his eyes and the book he was reading; but while black on green or white on green may be all right as an ophthalmological theory, it doesn't work out in practice. There is nothing like black ink and white paper and nothing is easier to read.

Her Majesty's Stationery Office has never been remarkable for its intelligence. It has been known to reject paper and buy the same lot from a third party, and moreover pass it! Now, however, it has probably knocked out all previous record of official stupidity. For the aid of working men and foreign readers it has issued a "Glossary of the Technical Terms used in the Evidence taken before the Royal Commission on Labor." To find that "granite" and "lager beer" are technical terms is alarming, and it will interest the working man to know that this latter article "has no body, is destitute of nourishment, and on account of the absence of alcohol no human being can possibly get drunk on it;" but this is wisdom to what follows. Guano is "a species of manure made by mixing various chemicals," a piece of information which will greatly astonish a highly respectable family of sea fowl. A paving "sett" is "a quality of stone composed chiefly of granite." Teak is "a wood obtained from the West Indies" (this will tell the Burmese and the East Indians where to go for it). "Rails are bars of steel used for railway lines;" "a top sail" is "a square sail," and the interlocking system "was formerly in general use, but is now superseded by the block system." This is merely a sample to show bulk. The writer actually announces "brass pyrites" as a new discovery in the mineral line, regardless of the fact that he himself has recorded elsewhere that "brasses" is colliers' slang for iron pyrites. All this may be mere ignorance, but it seems to me more likely that it is condensed impudence on the part of a Government clerk. Perhaps he makes the statement that a "horse marine" is the boy who looks after the canal boat horse, by way of hinting that the whole glossary must be looked upon as a practical joke. ALFA.

Philadelphia.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., March 8, 1894.

Philadelphia correspondence has been interrupted for some time, chiefly because business has been in such a state of masterly inactivity that there has been nothing to write about. I cannot say that there is much to write of now, but at least the spring is bringing about a sort of revival which is grasped at by the trade as the drowning man is supposed to grasp at the straw, nor is the promise of the future much more flattering. Until we know that the tariff will not be radically deranged, or if it is, until business has had time to adapt itself to the changed conditions, we can expect no "boom;" at present we are asking, with a celebrated specialist, "where are we at?"

These are in brief the views of a number of the local trade whom I have just interviewed. On the other side a few regard conditions more favorably. A. G. Elliott & Co., for instance, say that while the volume of their business is less than it was last year the decrease is not so great as some are complaining of. They are not hopeful, however, of much improvement.

Irwin N. Megargee & Co. report an improvement during the past few weeks, having booked a number of large orders. They regard the outlook as rather encouraging. The Eastern travelers also generally report trade as looking up.

S. M. Kennedy & Co. are running again at the old stand, and besides handling several manufacturers' lines are running the Star Mills at Hamstead, Md., capacity 4 tons daily. Mr. Kennedy was in Boston early this week and reports trade quiet there.

The historical old Glen Mills (Willcox's), now owned by the Glen Mills Paper Company, have been generally overhauled, enlarged and improved with new buildings, &c., including a parchmentizing plant, formerly belonging, I believe, to the Segal Mill in New Jersey. I shall have a full description of this plant in my next. William Willcox, formerly running these mills, is now studying electrical engineering.

The assignee of Bulkley, Ward & Co. expects to close out the remaining stock and wind up the business of the defunct firm this week.

The Whiting Paper Company recently issued a very complete and useful sample book, including ledger, writing and laid papers. The local manager, Mr. Briggs, reports that trade in flat papers is very satisfactory.

John Simmons, the well-known rag and paper dealer, is spending a month's vacation with some friends at Ormond, on the Halifax River, Fla.

The genial proprietors of the Megargee Paper Mills, Theodore and George Megargee, report business slowly but steadily improving since the first of the year. The "Dove Mill" at Modena, Chester County, has been considerably enlarged and improved by the addition of a set of supercalenders, new water wheels, a new driving train, &c., increasing its capacity from 6 to 10 tons per day. The Spring Lawn Mill, at Singerly, Md., is running full on water leaf.

The much discussed plan of the Susquehanna Water Power and Paper Company to open in Philadelphia an immense paper store and ware house, under the management of George Megargee, has evidently fallen through, and the company has bought instead the wrapping paper mill of Mentzel & Sons, near Baltimore, indicating a decided change of plans.

The bleach market is temporarily firm at 2½@2⅝ cents for spot, owing to delay in the arrival of steamers now overdue; but arrivals are expected daily.

Among recent visitors to the city were Messrs. Judd, of the Wauregan Paper Company, Holyoke; Southworth, of the Peru Paper Company, South Hadley Falls, Mass.; Mr. Fairchild, of the Fairchild Paper Company; Jas. Kinney, of White, Corbin Company, Rockville, Conn.; Chas. Callender, Glendale, Mass.; Outerson, of the Outerson Paper Company, New York; R. M. Fairfield, of the Fairfield Paper Company, and T. A. Mole, of the Owen Paper Company, Housatonic, Mass. STYLOGRAPHIC PEN.

Ad Valorem Duties.

The threatened return to a tariff system in which ad valorem duties are made to take the place of specific imposts will lead to grave frauds on the revenue. If it were possible to avoid an ad valorem duty altogether the country would be much better off in the collection of its revenue.

There is always a tendency to undervalue imports, whether the tariff may be low and "for revenue only," or for protection and the control of our own markets. Daniel Manning, Secretary of the Treasury under President Cleveland's first administration, wrote on the subject as follows:

One advantage, and perhaps the chief advantage, of a specific over an ad valorem system is in the fact that under the former duties are levied by a positive test, which can be applied by our officers while the merchandise is in the possession of the Government and according to a standard which is altogether national and domestic. That would be partially true of an ad valorem system levied upon "home value," but there are constitutional impediments in the way of such a system which appear to be insuperable; but under an ad valorem system the facts to which the ad valorem rate is to be applied must be gathered in places many thousand miles away and under circumstances most unfavorable to the administration of justice. * * * I do believe it to be possible for the more experienced and conscientious of our appraising or examining officers in different parts of the country and for the experts in this department to prepare a plan for the prudent enlargement of specific ratings which will greatly promote the welfare of the Government and of the country.

In the light of this authority and of the experience of customs officers the world over, it is certain that a high ad valorem system can be so evaded as to be less a source of revenue than a low specific duty system; it is an uncertain means of collecting duties and it is an encouragement to fraud.

Drying Coated Paper.

Two forms of apparatus recently patented are designed for drying paper to which a coating has been applied. These are to be used in connection with the usual coating machines.

One apparatus consists of a combination of an upper and lower conveyor belt, a series of transporting tapes co-acting with the lower conveyor belt, and a series of flier sticks adapted to support the paper from the upper conveyor belt to the transporting tapes, the sticks in their raised position being at an angle to the upper conveyor belt and in their lowered position parallel with and slightly below the upper surface of the transporting tapes and in horizontal alignment with the lower conveyor belt.

In the other apparatus there are two carriers moving in a horizontal plane and a series of sticks adapted to rest upon the carriers and to support a web of paper, with means for automatically reversing the sticks to bring their lower sides uppermost, these means comprising two forks pivotally supported at their closed ends adjacent to the carriers respectively and revoluble about their pivots in a vertical plane, and means for normally retaining the forks in such position that the sticks will successively enter their open ends.

In the High Court of Justice, at London, England, on March 3, the legal points arising from the jury's answers in the case of Mrs. John Biddulph Martin (Victoria Woodhull) against the trustees of the British Museum were argued, the court having suspended judgment pending this argument. At the conclusion of the argument, the court set aside the verdict of 20 shillings damages awarded to the plaintiff by the jury, and gave judgment for the defendants.

Putting in a Paper Mill Electric Plant.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

BY JAMES F. HOBART.

Third Paper.

The trouble alluded to near the close of the last paper is that of copper dust getting wedged between the commutator bars by becoming imbedded in the insulating material (probably mica) between them. The result of such an occurrence is to heat certain sections of the armature winding very badly and probably to "burn them out" by destroying the insulation of the armature wires, so that the current goes across from coil to coil, instead of flowing around through the whole length of the armature winding.

Very naturally the question will be asked here: "How does such a short circuiting of one or more of the coils cause them to burn out?" The answer is: Because the bit of metal short circuits a coil or makes a path, so that the current in that coil circulates right around through itself instead of going out through the wiring to do useful work, and the voltage generated in the coil, although much less than the entire voltage of the dynamo, meets so little resistance that an enormous current is formed right in that short circuited armature coil. The current being too large for the wire to carry without heating the latter has its temperature raised to a point which burns the insulation of the armature winding. Then the mischief has been done and the armature is "burned out."

The following table will give a good idea of the carrying capacity of wire of various sizes, also of the heating due to the passage of current. The numbers of wire per wire gauge differ so much with different systems that I will in these papers always give the diameter of the wire (under the insulation) as well as the number per gauge.

WIRE AND AMPERAGE TABLE.

(*S. Thomson.*)

Number per Gauge.	Diameter in Inches.	At 1,000 Amperes per Square Inch.		At 2,000 Amperes per Square Inch.		At 3,000 Amperes per Square Inch.		At 4,000 Amperes per Square Inch.	
		Ampéres the Wire Carries.	Rise in Temperature, Fahrenheit.	Ampéres the Wire Carries.	Rise in Temperature, Fahrenheit.	Ampéres the Wire Carries.	Rise in Temperature, Fahrenheit.	Ampéres the Wire Carries.	Rise in Temperature, Fahrenheit.
22	.028	.616	2.28	1.24	9.12	1.85	20.52	2.46	36.5
20	.036	1.018	3.18	2.036	12.72	3.05	28.62	4.07	50.9
19	.040	1.26	3.56	2.52	14.24	3.78	32.04	5.04	57.0
18	.048	1.81	4.64	3.62	18.56	5.43	41.76	7.24	74.2
17	.056	2.4	5.47	4.8	21.9	7.2	49.2	9.6	87.5
16	.064	3.2	6.57	6.4	26.3	9.6	59.1	12.8	105.1
15	.072	4.0	7.40	8.0	29.6	12.0	66.6	16.0	118.4
14	.080	5.0	8.46	10.0	33.8	15.0	76.3	20.0	135.4
13	.092	6.6	9.97	13.2	39.2	19.8	89.7	26.4	159.5
12	.104	8.5	11.53	17.0	46.1	25.5	103.8	34.0	184.4
11	.116	10.5	12.8	21.0	51.2	31.5	115.2	42.0	204.8
10	.128	12.8	14.3	25.6	57.2	38.4	128.7	51.2	228.8
9	.144	16.3	16.4	32.6	65.6	48.9	147.6	65.2	262.4
8	.160	20.1	18.4	40.2	73.6	60.3	165.6	80.4	297.7
7	.176	24.3	20.4	48.6	81.6	72.9	183.6	97.2	326.4

To use this table: We have a dynamo lighting 400 incandescent lamps, each taking .33 ampere each. How large must be the armature winding in order that the machine may not heat over 100° Fahr.? With 400 lamps at .33 ampere per lamp, 132 amperes must be carried. As the two sides of an armature coil are connected in parallel, each side carries one-half, or 66 amperes. Look in the table and we find that to carry 65.2 amperes requires a No. 9 wire (diameter. 144) under a density of 4,000 amperes per square inch. This calls for a rise of temperature of 262.4°, or more than double the 100° allowed; therefore a larger wire is needed.

Looking back to a No. 7 wire under the head of 3,000 amperes per square inch, we find that it will carry 72.9 amperes and that the temperature will rise 183.6°, cutting down the current to 66 amperes, the rise of temperature will be reduced, but not so as to come within the 100 limit; therefore, it is evident that a still larger wire will be needed to fill all of the conditions. The table does not give larger wire, because of the trouble experienced in putting larger sizes on an armature. When such a thing must be done, the wires take the form of bars, and are forged to the required shape. In this instance we will put on two wires, side by side, and connect them together at each end—in parallel—and then each wire has to carry only 33 amperes, and we can find it in the table.

No. 9 wire (diameter .144 inch) will carry 32.6 amperes with a rise in temperature of only 65 6°, coming considerably within the limit, therefore we can choose this size, or put on a still greater number of smaller wires connected up in parallel.

Returning again to the "burning out" business, we find that a No. 9 wire ought not to carry over 32 or 33 amperes of current, and the current in any conducting wire is determined by the pressure or voltage in the circuit (difference of potential, as it is sometimes called), divided by the resistance of the circuit; then with a 110 volt circuit,

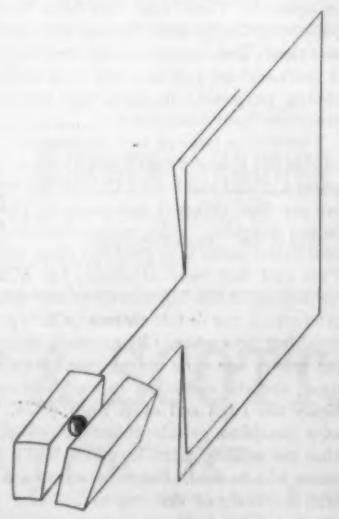


Fig. 21

loaded with 400 lamps the resistance would be about .81 ohm, almost nothing, in fact; therefore a single coil of the armature winding must have a still smaller resistance, say only $\frac{81}{100}$ ohm.

If there are 10 or 15 volts generated in that particular coil, and if the bit of copper shown at *a*, in Fig. 21, shuts the current up in that coil, then the current generated by 10 volts in a conductor of .0005 ohm resistance, is 10 divided by .0005—20,000 amperes. Surely enough to burn out a wire which will rise to a temperature of 262° when only 65 amperes are forced into it.

This matter of size of wire should be taken into account when the paper mill electrician comes to calculating electro magnet coils for catching iron on the machine and for calculating conductors about electrolytic apparatus. For the present we will discuss this point no further, but turn our attention to the proper size of main leads for the various circuits in the mill.

(To be continued.)

Trade Papers as an Advertising Medium.

There are scores of business men who, when told that the circulation of a trade paper is 3,000 to 4,000, are inclined to ridicule its claim as an advertising medium, not knowing that a single edition of a trade paper, having a circulation of 1,000 copies reaches more persons whom they wish to reach than the issue of a daily paper of 100,000 copies. Those who may be surprised at this statement and imagine that the figures are incorrect may easily convince themselves of their error by referring to the commercial agency reports. To reach the consumer of general merchandise the daily papers are a valuable medium; to reach those particularly interested in trade, the trade papers alone cover the field.—*Journal of Building.*

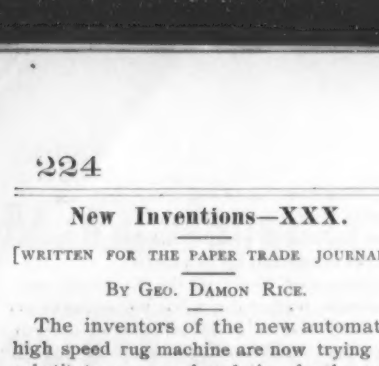
New Inventions—XXX.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

By Geo. Damon Rice.

The inventors of the new automatic high speed rug machine are now trying to substitute a paper foundation for the rugs in place of the jute fabric which was used at first. Should they be successful in establishing the superiority of a paper backing another avenue for the use of paper will be opened. These new rugs have been experimented with only during the past few months. The apparatus for making them is new, and as yet has not been made for selling purposes; in fact only one or two machines have been made.

The device is large and expensive; it occupies the space of two carpet looms. It is quite a crude looking affair, but the inventors say that this will not be so in the perfected machine. The main object of the new contrivance is to produce rugs rapidly. This end has been attained, for a single revolution of the big wheels of the machine produces a rug of full size and ready for the finishing processes. Rugs, mats and similar goods are now woven one thread at a time, and the operation is slow and costly; hence the rugs sell at a high price. The new machine grinds them out so quickly that the selling price is much less; hence more will be sold. Common yarns are used, but the body of the rug is to be of paper stock. First a description of the new machine for making the rugs will be given.



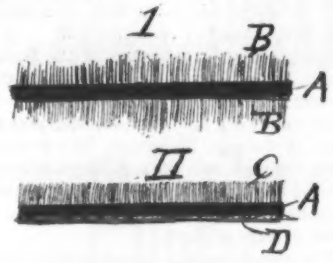
Rug Machine, Which Will Make a Rug a Minute.

In the cut the letters A A designate the frame of the new machine, and B is an interior frame made partly of wood and partly of iron, in which are set a large number of needles marked C. There are as many needles to the square inch as threads in each square inch of the rug to be made. This is only a side view of the machine, which was sketched by your correspondent. D is the supporting frame on the other side. In this are the plates, containing as many holes as there are needles, and the latter are pushed through these holes at each revolution of the machine. One plate is independent and is marked E, but is supported by levers. F is a roll of paper stock about an eighth of an inch thick and the width of a rug.

The mission of the machine is to set the yarns in this paper material in form of a pile. This is done as follows: The attendant turns the crank and the small gear L, and thus motion is communicated to the big gear K. An arm, H, connects this gear with the needle carriage B, hence a forward and backward movement is obtained. Every time that the big carriage containing thousands of needles is moved forward the points of the latter are pushed through the holes in the plates E, carrying with them yarns of different colors. As the paper foundation is between these plates, it follows that the yarns are set in it in the form of a pile. The yarns are taken from the warp I and are designated J, there being a thread for each needle, and a needle for each hole in the plates. Now the attendant turns the gear again and the carriage is made to return, withdrawing the needles, but allowing the strands of yarns to remain in the paper body. As soon as the needles retire another attendant draws a big, long knife down through the plates, cutting off all of the yarns within half an inch of the foundation on either side. Next the roll F is let out and the now partially made rug is wound onto the lower roll G. This ends the operation of the machine. The time required to do this is one minute, during which a rug has been made.

A side view of the rug, as it appears when first taken off the machine, is shown next.

In both of these figures the letter A designates that part of the rug which consists wholly of paper stock. In Figure I the letters B B signify the yarns as they appear from a side view immediately after having been taken off the machine. It can be seen that the ends are uneven. This is remedied by shearing as Brussels carpets are sheared. The rug after shearing off is



Side Views.

represented in Fig. 2. In this figure A is the paper body or foundation, and C the evened pile of yarns. To prevent the yarns from drawing or pulling out a rubber cement backing, marked D, is put on.

The Finished Rug.

A description of the method of preparing paper yarns for use in making carpets was given in these columns some weeks ago. The ingredients used in preparing these yarns for carpet use are employed in preparing the paper foundation for use in the rugs. In this way pliability and efficiency are obtained. Common paper stock might become damp and fall apart, but when protected with the compositions it becomes even more durable than jute, is far cheaper, and in fact is far better in many ways than other kinds of material which have been tried. By the use of elaborate arrangements of the variously colored yarns in the needles the most attractively figured effects are obtained, and very beautiful rugs are made. The inventors talk of having the design painted upon the bare paper foundation, so that after the yarn pile wears off the figure may still be preserved on the mat, thus prolonging its life.

In making the paper foundation increased durability is obtained by introducing small quantities of cow hair in the pulp. Other ingredients consist of borax, glue, rubber and cement.

Wood Pulp, Soda AND Sulphite,
IMPORTED BY
G. RAU, TIMES BUILDING, **New York.**
SOLE AGENT FOR THE U. S. AND CANADA:
ROZÈS AINÉ & FRÈRES, Agen,
Well-known Packers of Linens and Cottons.

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UNIFORMITY, CLEANLINESS, STRENGTH, COLOR. | FOR BOOK, MANILLA, No. 1 NEWS. | PERFECT GROUND SPRUCE PULP.

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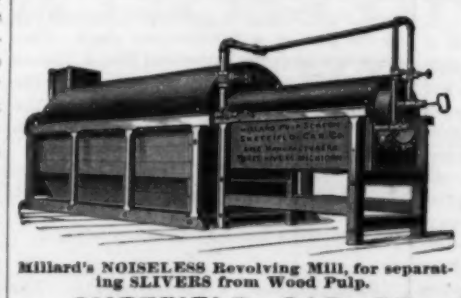
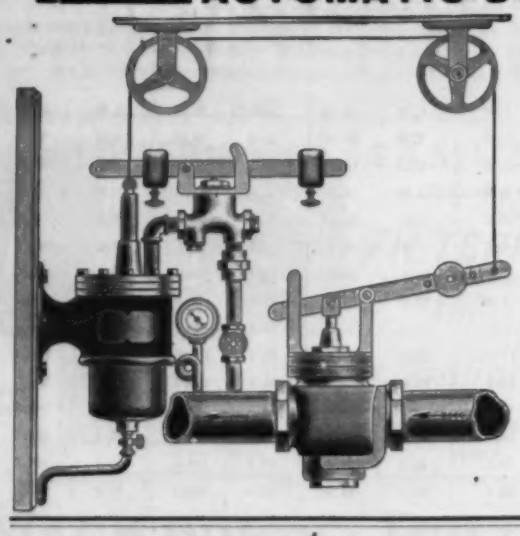


Millard's NOISELESS Revolving Mill, for separating SLIVERS from Wood Pulp.

No waste of stock.
No attention required.
Noiseless.
No wearing parts to give out.
Works automatically.
Delivers slivers clear of screen without attention.
Less help required in running.
Screen plates warranted for three years without recutting.
Requires only ⅙ Horse Power to operate.

SHEFFIELD CAR CO., Three Rivers, Mich.

LOWDEN'S AUTOMATIC STEAM PRESSURE REGULATOR.



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S. D. Warren & Co.,		Cumberland Mills, Me.
Winnipiseogee Paper Co.,	3 Regulators,	Franklin, N. H.
W. T. Barker & Co.,		Bennington, Vt.
Nonotuck Paper Co.,	4 Regulators,	Holyoke, Mass.
Franklin Paper Co.,	2 "	" "
Geo. R. Dickinson Paper Co.,	2 "	" "
Whiting Paper Co.,		" "
Albion Paper Co.,		" "
Crocker Mfg. Co.,	5 Regulators,	" "
Norman Paper Co.,	4 "	" "
Waureagan Paper Co.,	2 "	" "
Montaguk Paper Co.,	3 "	Turner's Falls, Mass.
James Ramage Paper Co.,	2 "	Monroe Bridge, "
The Racquette Paper Co.,		Potsdam, N. Y.
Martin & Wm. H. Nixon Paper Co.,	6 Regulators,	Philadelphia, Pa.
John Lang,	2 "	" "

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Patentee and Sole Proprietor,
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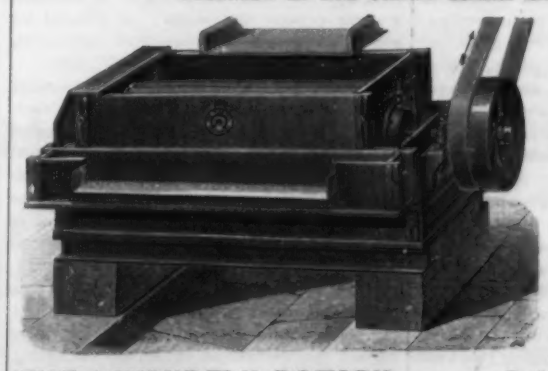
Rotary Sulphite Pulp Strainer
PATENTED IN THE UNITED STATES AND CANADA.



ADVANTAGES.
Largest straining surface, combined with small requirement of room.
Unsurpassed straining capacity.
Absolutely reliable and noiseless work.
No contact of the Pulp with iron parts.
Practical construction.
Simple, durable, perfect.
Price very moderate.

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—OR—
GEO. HAMILTON, No. 74 Wall Street, New York.

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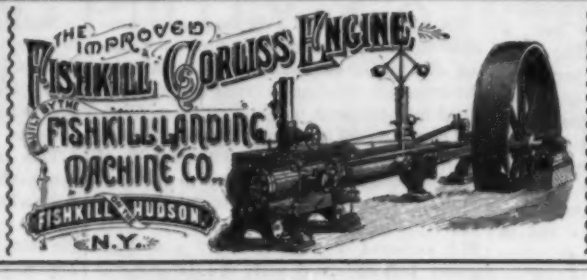
Embodying many marked
IMPROVEMENTS,
Resulting in the production of the
MOST EFFICIENT
And ECONOMICAL POWER in the World!



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Has the indorsement of many of the leading Manufacturers and great Corporations of the United States, as well as high Testimonials from eminent Engineers.
Also Boilers, Shafting, Pulleys and everything necessary for a complete Steam Power Plant.

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Winford Iron Ore AND Redding Co.'s Celebrated O. W. S. Red Oxide.
Much stronger than any Venetian Red in the market. Takes less quantity and gives better color, making it very desirable for Roofing, Sheathing Papers and Wrappers.
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We also manufacture all other grades of Sulphate of Alumina and Ammonia Alum that are required by the paper maker.
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STANDARD STAVE & COOPERAGE CO.
MANUFACTURERS OF
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RESERVOIR TANKS
Of any Shape or Capacity, for
PAPER AND PULP MILLS.
19 WHITEHALL STREET, NEW YORK. OFFICES: 160 STATE STREET, BOSTON.
—Illustrated Catalogue upon Application.—

Imports and Exports.

IMPORTS AT NEW YORK.

FOR THE WEEK ENDED MARCH 2, 1894.

An. Colors..	303	$22,769	Paper.....	284	$14,821
Alum.....	48	435	Steel Pens...	1	2,118
Alum's Cake	—	—	Stationery...	8	1,278
Bl. Powders	1,007	22,814	Slate Pencils	—	—
Soda Ash...	3,834	14,880	Clay.....	—	594
Soda, Caus.	867	11,604	J'te B'ts, &c.	15,423	63,074
Soda, Sal....	—	—	P. Hangings	72	3,810
Soda, Hypo.	158	1,438	P'p'r Stock..	3,450	22,948
Ultramarine	115	4,775	Terra Alba..	—	—
Books.....	155	29,614	Waste.....	—	—
Newspapers.	103	4,490	Wood Pulp.	2,231	14,508
Engravings.	49	3,408			
Ink.....	3	87			
Lead Pencils	—	—	Totals....	18,210	238,815

Imports General Merchandise for the week ended March 2, 1894.....$9,304,603

IMPORTS OF PAPER STOCK AT NEW YORK.

FROM JANUARY 31 TO MARCH 7, 1894.

Whence Imported.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Alexandria...	1,349	....	....	....	....
Antwerp.....	....	27	341	....	3,326
Aspinwall	90	....	....	....	....
Bremen	....	....	....	....	1,192
Bristol.....	....	....	....	....	770
Calcutta.....	....	....	....	....	470
Christiania....	....	....	341	....	98
Dundee.....	....	....	....	....	423
Fiume.....	....	....	99	....	....
Genoa.....	....	....	...	....	1,441
Glasgow.....	41	58	....	....	....
Gothenburg ..	....	....	52	....	....
Hamburg.....	197	70	322	....	594
Hiogo.....	7,119	....	....	....	....
Hull.....*a*	1,121	57	688	....	3,367
Kobe.....	1,385	....	....	....	....
Leith.....	....	106	....	....	....
Liverpool.....	129	223	....	....	2,500
London.....	531	466	....	....	2,464
Marseilles....	61	....	....	....	473
Nassau	23	....	....	....	....
Newcastle....	....	73	....	....	522
Rotterdam....	139	....	105	....	2,098
Stettin.....	2,054	....	275	....	642

a. Including 347 bales cotton waste.

NEW YORK IMPORTS.

FROM FEBRUARY 28 TO MARCH 7, 1894.

Paper Stock.

Seymour Paper Company, Reinovato, Alexandria, 1,349 bs. rags.

Castle & Gottheil, Waesland, Antwerp, 100 bs. manillas, 73 bs. bagging.

H. Bauer, Munchen, Bremen, 19 bs. manillas.

Ralli Brothers, Combermere, Calcutta, 342 bs. manillas.

H. Dutton & Co., Hekla, Christiania, 98 bs. manillas.

P. Bertuch & Co., by same, 341 tons chemical fibre.

R. H. Overton & Son, Principia, Dundee, 126 bs. manillas.

Jessup & Moore Paper Company, Barbara Preve, Genoa, 765 bs. bagging.

F. Salomon & Co., Amalfi, Hamburg, 99 bs. bagging, 55 bs. rags, 23 bs. manillas.

F. Bertuch & Co., Galileo, Hull, 35 tons chemical fibre.

W. A. Avis & Co., Lillian M. Robbins, Kobe, 1,385 bs. rags.

Horace Dutton & Co., Civic, Liverpool, 146 bs. manillas.

Kugelmann & Co., by same, 162 bs. bagging.

Geo. Stratford, Lydian Monarch, London, 24 bs. manillas.

J. W. Mason & Co., by same, 326 bs. manillas.

James Pirnie, Berlin, London, 160 bs. bagging.

James Pirnie, Spain, London, 98 bs. bagging.

James Pirnie, Fidelia, Marseilles, 473 bs. bagging.

Atterbury Brothers, by same, 61 bs. rags.

George Hamilton, Winchester, Rotterdam, 35 tons chemical fibre.

F. Salomon & Co., Zaandam, Rotterdam, 363 bs. bagging.

Lewy Brothers, Helene, Stettin, 232 bs. bagging, 1,949 bs. rags.

Paper.

L. De Jonge & Co., Moravia, Hamburg, 16 cs.

E. Hawley, by same, 5 cs.

Hermann Haug, by same, 2 cs.

B. Lawrence Stationery Company, by same, 1 cs.

Jackson & McDonnell, by same, 11 cs.

L. C. Wagner & Co., Waesland, Antwerp, 4 cs.

Dingelstedt & Co., by same, 12 cs.

G. Gennert, by same, 13 cs.

G. W. Sheldon & Co., by same, 15 cs.

Scovill & Adams Manufacturing Company, by same, 9 cs.

O. F. Melvin, by same, 1 cs.

Kupfer Brothers, by same, 9 cs.

W. Seyd, by same, 13 cs.

A. Rollker & Son, Winchester, Rotterdam, 40 bs.

L. De Jonge & Co., by same, 12 cs.

W. H. S. Lloyd & Co., Teutonic, Liverpool, 14 cs. hangings.

Nevius & Haviland, by same, 5 cs. hangings.

Eckmeyer & Co., Munchen, Bremen, 4 cs.

John Hunter, by same, 5 cs.

Lehn & Fink, Ludgate Hill, London, 1 cs.

G. Gennert, Maasdam, Rotterdam, 8 cs.

H. S. Leclercq, by same, 20 cs.

H. S. Leclercq, Zaandam, Rotterdam, 6 cs.

B. Ilifelder & Co., Maasdam, Rotterdam, 1 cs.

W. Heuermann, Dania, Hamburg, 20 cs.

J. C. Druckleib & Co., La Gascogne, Havre, 60 cs. cigarette.

G. Friedman, Spain, London, 1 cs.

BOSTON IMPORTS.

FROM MARCH 1 TO MARCH 8, 1894, INCLUSIVE.

Paper, &c.

Wm. Guild & Co., Cephalonia, Liverpool, 5 bs. periodicals.

R. F. Downing & Co., by same, 1 cs. labels.

A. H. Davenport, by same, 3 cs. paper hangings.

E. Bumstead & Co., by same, 2 cs. paper hangings.

Gregory & Brown, by same, 16 cs. paper hangings.

H. A. Turner & Co., by same, 6 cs. paper hangings.

W. A. Noseworthy, by same, 28 cs. paper.

W. A. Noseworthy, Venetian, Liverpool, 10 bs. paper.

Paper Stock.

C. A. Cheney, Venetian, London, 35 bs. waste paper.

True & McClelland, by same, 92 coils manillas.

Train, Smith & Co., Sarmatian, Glasgow, 176 bs. waste paper.

True & McClelland, by same, 154 bs. waste paper.

C. A. Cheney, Lake Nepigon, Liverpool, 100 bs. manillas.

R. H. Overton & Son, by same, 251 bs. manillas.

True & McClelland, by same, 47 bs. waste paper.

R. H. Overton & Son, Kansas, Liverpool, 208 bs. manillas.

True & McClelland, by same, 46 bs. waste paper.

Train, Smith & Co., Herman, Antwerp, 70 bs. rags, 117 bs. manillas.

Order, by same, 120 bs. manillas.

Sizing.

C. A. Cheney, Kansas, Liverpool, 92 bags.

Thomas Groom & Co., by same, 80 bags.

J. W. McClintock, Cephalonia, Liverpool, 244 bags.

Bleaching Powder.

J. L. & D. S. Riker, Kansas, Liverpool, 260 cks.

Order, Hermann, Antwerp, 55 cks.

Read, Holiday & Son, Lake Nepigon, Liverpool, 98 cks.

Caustic Soda.

Edward Hill's Son & Co., Kansas, Liverpool, 150 drums.

Soda Ash.

Warren & Co., Kansas, Liverpool, 39 cks., 400 bags.

A. P. Tippet & Co., by same, 167 bags.

Wing & Evans, Cephalonia, Liverpool, 600 bags.

Bowman & Thompson, by same, 95 cks., 220 bags.

PHILADELPHIA IMPORTS.

FOR THE WEEK ENDED MARCH 3, 1894.

Paper.

A. Hartung & Co., Baumwall, Hamburg, 10 cs. colored.

C. Beck Paper Company, by same, 13 cs.

Caustic Soda.

E. Hill's Sons & Co., Maine, London, 50 drums.

EXPORTS of Paper, &c., from New York for the Week Ended March 6, 1894.

BOOKS, cases, to London, 22; Liverpool, 8; British Australasia, 42; Central America, 1; Cuba, 5; Newfoundland, 8; Amsterdam, 1; British Honduras, 3; British possessions in Africa, 10; British West Indies, 7; Dutch West Indies, 1; Genoa, 1; Havre, 1; Hamburg, 1; Mexico, 6.

PAPER, to Cuba, 1,852 bs.; British West Indies, 442 pkgs.; Liverpool, 131 cs.; Hayti, 7 pkgs.; Columbia, 79 pkgs.; London, 276 pkgs.; San Domingo, 161 pkgs.; Argentine Republic, 15 pkgs.; Central America, 75 cs.; Hamburg, 6 cs.; Venezuela, 60 pkgs.; Antwerp, 1 pkg.; Barcelona, 1 cs.; British Honduras, 87 pkgs.; British Guiana, 102 pkgs.; Bremen, 6 cs.; China, 1 cs.; Ecuador, 1 pkg.; Havre, 9 cs.; Newfoundland, 20 bdls.; Oporto, 11 cs.

STATIONERY, cases, to Cuba, 18; Columbia, 6; Venezuela, 11; London, 20; British West Indies, 7; British Australasia, 1; Central America, 7; Argentine Republic, 60; Hull, 1; Mexico, 23; Newfoundland, 3; Oporto, 4; San Domingo, 8; Uruguay, 2; British Honduras, 1; British Guiana, 1; Bremen, 5; Bristol, 11; Christiania, 2; Chili, 2; China, 1; Dutch West Indies, 1; Gothenburg, 8; Hayti, 8; Hamburg, 4; Liverpool, 3.

PAPER BAGS, packages to British Australasia, 254; Newfoundland, 50 bdls.

WALL PAPER, cases, to London, 3.

AGGREGATES AND VALUES.

Paper, reams.....	—	—
Paper, pkgs.....	2,373	$6,146
Paper, cases.....	492	7,505
Books, cases.....	99	6,522
Stationery, cases.....	210	15,065
Rosin, bbls.....	928	3,097
Totals.....	4,159	$38,335

Exports General Merchandise for the week ended March 6, 1894..... $5,216,547

JUTE AND LINEN
Paper Stock.
J. & W. SMITH,
DUNDEE, Scotland,
Packers and Shippers of
Clean Jute Threads, Clean Jute Ropes, Gunny Bagging, Manilla Ropes, Bleached Linen Cuttings and Bleached Linen Threads.
ENGINE CLEANING WASTES,
Colored Jute Wastes, Bleached Jute Wastes, Felting Wastes and Carded Jute Tows.
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COMMERCIAL COURT.
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Paper Machinery.
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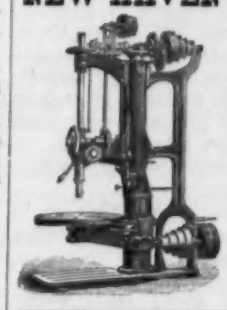
GRATE BAR

For any kind of Fuel.
W. W. TUPPER & CO., 39-41 Cortlandt St., Room 131, Taylor Building, NEW YORK.
Send for Circular.

NEW HAVEN MAN'F'G CO.,
NEW HAVEN, CONN.

Manufacturers of
Lathes, Planers, Shapers, Slotters, Etc.

TRAIN, SMITH & CO.,
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—ALL DESCRIPTIONS OF—
Paper Makers' Supplies,
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BRANCH OFFICES: 36 BEEKMAN STREET, NEW YORK. 21 ST. MARY AXE, E. C., LONDON. EDMUND ST. CHAMBERS, LIVERPOOL.

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WOOLEN RAGS GRADED IN COLORS AND QUALITY.

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Paper Stock Packers.
White Post Shavings, Blue and White Writings,
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Sulphite and Soda Pulps,
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JUTE STOCKS, SIZING, &c.
140 NASSAU STREET, NEW YORK.

A. WERTHEIM & CO., Hamburg, Germany,
EXPORTERS OF ALL GRADES OF
SULPHITE AND SODA PULPS.
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American Mail and Export Journal, separate editions, English and Spanish (EL CORREO AMERICANO Y DIARIO DE EXPORTACION), Monthly, . . .	3.00
Lockwood's Directory of the Paper, Stationery and Allied Trades, Annually, ...	2.00

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Boston Office—A. L. DELESDERNIER, General Manager, 67 FEDERAL STREET, BOSTON, Mass.

NEW YORK: SATURDAY, MARCH 10, 1894.

"THE CHEMISTRY OF PAPER MAKING."

On the 2d inst. we wrote to A. D. Little, offering to send a man to live with him for a week, who would act as an amanuensis for the last two chapters remaining to complete the "Chemistry of Paper Making." He replied that he would thoroughly work up the "skeletons" of those chapters and let us know on Friday morning (9th inst.) whether we should send the assistant to him or not; but that he hoped to finish the work without help. Yesterday morning we received the following telegram:

"Find I can get along faster without man; expect to have everything done by fifteenth (Thursday next); letter following."

We publish this dispatch only for what it may be worth. Mr. Little's procrastination is the sole explanation that we can give why the book was not on the market long ago; but we are sure that it will be thorough, reliable and serviceable after he is done.

HOWARD LOCKWOOD & CO.

OUR British correspondent sets forth the anxiety of his countrymen to benefit by a change in our tariff—the anticipated advantage to accrue from lower duties. It is possible that their desires will be gratified.

EXPORTS of paper and stationery continue to increase. For the first seven months of the current fiscal year our shipments of paper were valued at $200,000 more than for the corresponding term last year. In stationery exports the increase in values was $77,700. These are encouraging indications, of which our manufacturers should not lose sight.

THE machine illustrated and described on the first page of this issue of THE PAPER TRADE JOURNAL is intended to recover wood fibre from the waste liquor resulting from the alkali process for making fibre. This machine consists of a combination, with a suitable frame and supply hopper, of a set of coacting pressure rolls, between which a conveyor is arranged to travel, a receiving tank, a discharge chute, a liquid supply tank arranged to deliver liquid to the fibre after its compression between the pressure rolls, and a scraper or knife supported in position to clear the upper pressure roll from pulp which adheres to it.

A CORRESPONDENT in a leading British commercial publication takes occasion to refer to the quality of American tools and machinery, and presents some figures showing the increase in the imports from the United States into England of these manufactures. He avers that the American system of manufacture favors exactitude, and that our system of subdivided work has resulted in accuracy, and while there may be inferior American machines a majority of them are excellent. This is tersely put and has the merit of being correct. American machinery is known in every market of the world. It has driven many of the old ideas of mechanism to the wall, and our export list shows that in every branch where machines are needed for economy, strength and general excellence the American makes are conspicuous.

CONSTANT conflicts between shippers and carriers have arisen out of bills of lading, and the courts are frequently called on to decide the issues arising thereunder. A bill of lading is primarily a written contract of one form or another for the transportation of freight, entered into by and between a common carrier and a shipper. It is to be considered as governed accordingly by the familiar settled rules of law applicable to written contracts in general; but two or three points should in this connection be noted. The carrier now almost always being a corporation which must act through agents of one grade or another, the agent who issues a bill of lading, in order to bind the carrier thereby, must have express or implied authority to make the contract contained therein. On the other hand considerations of public policy have led the courts time and again to relieve shippers from many conditions contained in bills of lading, especially stipulations which are in effect exemptions from liability for the results of negligence on the part of the carrier and its servants. Furthermore, a bill of lading for an interstate shipment must square itself with the, as yet, more or less undefined and unsettled doctrine of a national interstate commerce law.

As a contract a bill of lading confers as inviolable rights as any other. If the carrier fails to perform its part, it must respond in damages. The amount which it overcharges can be collected back; but care must be exercised to distinguish between real and merely apparent overcharges. Not all apparent overcharges are really overcharges, as will be further explained. Overcharges are commonly occasioned by misrouting, by erroneous classification, by a change of weight or by mistakes made in computing rates, either at the time the bill of lading is issued, in billing the shipment out, or when the agent at destination makes his bill for the freight, which the railroads term an "expense bill." Mutual mistakes or the effects of fraud in contracts will always be corrected for innocent parties unless new rights of third persons have intervened. So if both carrier and shipper make a mutual mistake on some one point either can have it corrected. The mistake of either the one or the other of them cannot be corrected to the other's prejudice. Fraud of the one can on discovery be corrected by the other. It follows from the foregoing that a carrier can make many corrections, increasing its charges without creating an overcharge. Thus, if what a package contains is represented to it as one thing, and the carrier afterward finds that it is in whole or in part something entirely different, it can make its charges on the latter, notwithstanding a bill of lading has been issued on the former basis.

THE greatest trouble at the present time is over bills of lading covering interstate shipments. The railroads are much disposed toward the view that any such bill of lading at variance with their published tariffs is void and cannot be protected. This is perhaps less than half true. The Interstate Commerce Commission says that where a shipper does not enter into a contract for the purpose of securing a rate which he knows, or by the exercise of reasonable diligence might have known, to be illegal, but is an innocent party to it and makes his shipment in good faith on the strength of the rate therein named, the courts have jurisdiction, and seem inclined to hold that he is entitled to have the goods delivered on payment by him of the amount named in the bill of lading. It was held by the Supreme Court of the United States in a recent case that there is nothing in the Interstate Commerce law which vitiates bills of lading, or which, by reason of the allowance of an illegal rebate, will invalidate a contract of affreightment or exempt a railroad company from liability on its bills of lading.

THE British Board of Trade returns for January seem to give encouragement to our English contemporaries and our correspondent at London also seems to experience this feeling. On looking at the figures presented in the London papers we find that the chief source of gratification for the British paper trade must arise from the increase of importations, which is said to be enormous compared with one year ago. The difference in values amounts to $211,055 for the month, and of this increase and of this amount $112,745 are credited to European countries, while nothing is said as to the country of origin of the paper imports, which make up the balance of $97,060. Of course the products of the United States go to make up this balance, and it would be interesting to know to what extent. A singular reticence appears to control our friends on the other side in this particular; for while the increase or decrease from the several European countries is specified in each instance, America is not mentioned. This is suggestive and must cause speculation. Exports of paper from the United Kingdom fell off during January to the extent of $25,570 worth, compared with the same month last year.

Watermarks.

BY DANDY.

Cotton and linen rags have not been coming forward as freely as they did last year. By Government figures just published it will be seen that in January, 1893, there were imported 14,175,016 pounds, valued at $251,482, while in January of this year there were imported only 2,934,478 pounds, valued at $47,720.

If reports are true we have plenty of rags here, and some people probably wish that they didn't possess so many of them as they do.

The same state of affairs is true of wood pulp. In January, 1893, we imported 6,332 tons, while in January this year we imported only 3,842 tons, a decrease of nearly 50 per cent.

If this goes on at the same ratio we will soon be getting very little raw material for paper making from beyond our own borders.

A member of the New York trade who is preparing to sail for the other side on March 17 is laying in a choice assortment of flaming green neckties, green dove and clay pipe scarf pins and such other things as the market may afford in the way of emblems appropriate to the holiday.

He believes in doing the thing up in style, and is going to make a sensation without regard to cost.

It pays to read every legal paper with which one may be served. So thinks a paper stock man who did not carefully peruse a summons which was presented to him. He took it for granted that the suit was begun in the Supreme Court and that he had twenty days to answer. The fact was it was in the City Court, and he had only six days in which to appear.

The result was a judgment, much to his surprise, the first news of it being conveyed to him by his morning paper. Happily, the matter was arranged satisfactorily.

There comes to hand a story of a girl in a rag room of a New York State mill finding a diamond ring in some rags. At the same time it is reported that a New York wall paper manufacturer was robbed of his diamonds. Funny, isn't it, how quick diamonds, rags and news travel?

Trade Talks.

H. G. Bixby, President and Treasurer of the Nashua Card and Glazed Paper Company, Nashua, N. H.—Trade has been good with us for some time past, and we are busy now in most of our lines. I cannot say what business will be in the course of the next few months, but hope for the best. The tariff or rather the proposed changes will affect us, as surface coated paper is reduced from 35 to 25 per cent. ad valorem. Foreign manufacturers are not making much money, but this decrease would give them a nice little profit. The business in this country is now done by the larger manufacturers, but the advantage in the change of the duty will permit the smaller ones to have representatives on this side of the water. That of course means greater competition. The consumption of paper will be affected by general trade conditions, too. For instance, the mills at Nashua, Manchester, Lawrence, Lowell and Fall River are stocking their goods, which means that as soon as conditions are favorable for them to do so they will close down their mills. Most of the cotton manufacturers are loaded up with cotton, and the price to-day is lower than that at which they bought; therefore the goods are costing them more than they ought to. I think, with Governor Cheney that all this will have an effect upon the consumption of paper. I might add that new uses for our coated paper are being found out every day, which of course helps to keep up the demand.

Communications.

A Statement.

NEW YORK, March 6, 1894.

Editor of The Paper Trade Journal:

We noticed in a trade paper the following item:

"A motion for the appointment of a receiver for the Bird Paper Manufacturing Company, of Hoboken, N. J., has been made. The liabilities of the firm are said to be $18,000 and assets, $8,000."

The truth of the matter is this: The motion for the appointment of a receiver was the outcome of ill feeling among some of the stockholders, and there is no ground for appointing a receiver, for the reason that the company has assets amounting to $46,019.59 and liabilities of $17,348.32; about 90 per cent. of the liabilities do not become due until the fall.

Our business continues as usual, as the court has dissolved all restraint which the motion for the appointment of a receiver carries with it. The board of directors desires to uphold the credit of the company, and it is with this end in view that we address this communication to you.

THE BIRD PAPER MANUFACTURING COMPANY.

Changes, Removals and New Firms.

M. B. Candler, publisher, Madison, Ga., has sold out.

William Murdock, stationer, &c., Clifton, Kan., has sold out.

Myers & Haswell, stationers, Bryan, Tex., have dissolved partnership.

Rogerson & Stockton, printers, Chicago, Ill., have dissolved partnership.

Hirsch & Johnson, printers, Chillicothe, Mo., have dissolved partnership.

G. W. Rogers & Co., dealers in wall paper, &c., Garnett, Kan., have sold out.

E. A. Douglass, bookseller, &c., Hot Springs, Ark., has sold out to C. H. Weaver & Co.

T. O. Cramer has opened a book and stationery store at 1006 Main street, Kansas City, Mo.

Smith & Merrill, stationers, Paterson, N. J., have dissolved partnership. Merrill succeeds.

Lorenz & Co., Dayton, Ohio, have begun to issue a new monthly journal called the *Choir Leader*.

The Delaware Paper Company, Stratford, Ohio, has been incorporated. The capital stock is $10,000.

A. Klipstein, dealer in chemicals, colors, &c., New York, has been succeeded by A. Klepstein & Co.

Owen, Strout & Co., printers, Portland, Me., have been succeeded by the Tucker Printing Company.

Haygood & Fowler, booksellers and stationers, Montgomery, Ala., have been succeeded by W. W. Haygood.

The Todd Manufacturing Company, manufacturer of paper boxes, New Haven, Conn., has been incorporated.

Ervin & Co., dealers in paper hangings, Philadelphia, Pa., have been succeeded by a new firm, under the same style.

W. S. Duckworth & Co., stationers and booksellers, Nashville, Tenn., has been succeeded by J. H. Duckworth & Co.

The T. E. Sterne Paper Company, Chatham, N. Y., has been incorporated. It will run the Empire Mills at that point.

The F. J. Lewis Roofing and Manufacturing Company, Omaha, Neb., has been incorporated to manufacture building paper, &c.

The Babcock & Wilcox Company, manufacturer of steam boilers, has removed its main office to No. 29 Cortlandt street, corner of Church street, New York.

The New York Printing Company (the "Republic Press") has been incorporated to conduct the business of high-class general and manufacturing printers and publishers in New York city; capital, $25,000, and directors, Henry Hall, William Sydney Rossiter and Edward Hagaman Hall, of New York city.

The Mignon Photo Paper Company, Chicago, Ill., has been incorporated with a capital stock of $50,000. The incorporators are John W. Kouver, Charles Unger, Jr., and James J. Hoch.

Herbert R. Mann and Herbert F. Hastings have formed a copartnership under the style of Mann & Hastings, and have purchased the stationery and book business of Smyth & Co., Troy, N. Y.

The James H. Bishop Company, paper dealer, Minneapolis, Minn., has been incorporated. This concern succeeds James H. Bishop & Co., and the order of the court dissolving the last named incorporation was filed with the articles of the new company.

The *American Wheelman and Cycle Trade Gazette* Publishing Company, of New York, has been incorporated with a capital of $8,000, and directors, Henry L. Saltonstall, William J. Morgan and Frank E. Hipple.

The Photogenic Paper Company, of Albany, N. Y., has been incorporated with a capital of $100,000, and directors, A. M. Brady, A. Bleecker Bank, James B. Mumford, Francis C. Huyck and J. M. Warner, Albany.

The Finnish-American Publishing Company, has been incorporated to print and publish books in Brooklyn, N. Y. Capital, $2,000, and directors, Jacob E. Saari, Alex. Katonen, Gustaf A. Gronlund, David W. Johnson and John Caski, of New York.

Col. A. G. Paine and A. G. Paine, Jr., have formed a copartnership under the style of A. G. Paine & Co., and will conduct a banking and merchandizing business, with special view to the export of American chemical fibre, ground wood and other paper makers' supplies. The firm has opened offices on the fourth floor of the *Times* Building, New York.

The Pan-American Company, of New York city, has been incorporated to maintain a permanent exhibition of American manufactures suitable for the export trade, and of the natural products of other countries suitable for the markets of the United States, to maintain a bureau of commercial information, and to act as agents. Capital, $150,000, and directors, William Harper, John R. G. Pitkin and George Muellarro, of New York city; Willard P. Tisdell and William E. Curtis, of Washington. Mr. Harper subscribes to the full amount of the capital stock.

Failures.

C. Long & Co., paper dealers, Jackson, Mich., have made an assignment. Liabilities, $7,500; assets, $15,000.

J. S. Clapp, pulp manufacturer, Paris, Me., has gone into insolvency.

Samuel Margerum, trustee of the Gunckel Banking Company, of Middletown, Ohio, insolvent, has petitioned for the appointment of a receiver for the United Paper Company's property in Middletown.

Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; T. D., trust deed, and Real, a mortgage on real estate.]

EASTERN STATES.

Mortgagor.	*Amount.*
Massachusetts Publishing Company, Boston, Mass.	$2,700
Automatic Time Stamp and Register Company, Boston, Mass.	5,000

WESTERN STATES.

S. W. Kiner, Ida Grove, Ia.	330
J. H. Murphy & Brother, Newton, Kan. (Real)	3,000
L. C. Miller, Pratt, Kan.	274
C. Long & Co., Jackson, Mich.	1,212
Plummer & La Grave, Minneapolis, Minn.	210
Dan Mullen, J., St. Paul, Minn. (B. S.)	250
O. & S. Silberman, St. Paul, Minn.	2,500
John Fogarty & Co., Butte City, Mon.	650
Harry R. Bacon, Toledo, Ohio	600
B. F. Wade Company, Toledo, Ohio (R.)	4,000
John K. Shingle (*Tribune*), Cheyenne, Wy.	500

SOUTHERN STATES.

Ford, Martin & Graham, St. Joseph, Mo.	770

LIENS DISCHARGED.

Elifritz Brothers (B. O. Elifritz), Springfield, Ohio (Real)	350

Accidents.

Carr Moody, employed in the mill of the Watertown Paper Company, Watertown, N. Y., had his fingers caught in the roll recently, and as a result amputation of his middle finger followed.

Calvin Johnson, assistant engineer at the Denver Paper Mills, Denver, Col., was thrown 30 feet in the engine room on February 25 and badly injured. A cylinder head on one of the large engines blew off, causing the accident. When picked up Johnson was unconscious and was frightfully scalded. The skin on his face and chest was cooked. John Henry, another employee, was struck on the side of the head with a piece of scrap iron, but received little injury.

Fires.

On Sunday morning, 4th inst., at York, Pa., a three story brick building, which contained the entire outfit of the *Daily* Publishing Company, was destroyed by fire. The loss is about $25,000. The business office is located in a separate building. The paper will be printed without interruption from the office of the *Age*.

Silber & Case, doing business as the Binghamton Lithographic Company, Binghamton, N. Y., were burned out on March 8. Loss $26,000; insured for about one half of that amount.

On March 5, at about 6 o'clock P. M., the mill of the Gardner Pulp Company at Gouverneur, N. Y., was discovered to be on fire and all efforts to save it were of no avail. In about half an hour the building, with its contents was a mass of flames and in one hour more nothing was left except a mass of smoking ruins. The company was composed of L. M. Gardner and A. L. McCrea of Gouverneur, N. Y., besides Watertown and Rochester capitalists. The loss is about $60,000, with an insurance of $26,000. This will throw about seventy men out of employment, besides injuring the mineral pulp market.

Fire at the mill of the Munroe Felt and Paper Company, Lawrence, Mass., on March 5, caused a loss of $600.

Fire broke out in the warehouse of the mill of the Kokomo Paper Company, Kokomo, Ind., on March 1, and extended to the machine room, causing a loss of $10,000, which is covered by insurance.

The mill of the Mottville Paper Company, Mottville, N. Y., was destroyed by fire on March 7. Loss over $25,000.

The John Carroll homestead at Mill River, Mass., owned by the Stockbridge Savings Bank, was burned with all contents on March 7. The house was built forty years ago at a cost of $50,000. Mr. Carroll, who built the house, was a paper maker.

Obituary.

JAMES MONTGOMERY BAILEY.

On Sunday, March 4, James M. Bailey, who since 1870 has been familiarly known as the "Danbury *News* Man," died at his home in Danbury, Conn. Mr. Bailey was the immediate successor to Charles Farrar Brown ("Artemus Ward") in the favor of Americans and Englishmen who can afford to laugh as they read. Few humorous writers for the press made reputation so rapidly as Bailey. All his fun was as sparkling as it was quaint, original and spontaneous. His books sold well when severally published by Lee & Shepard, of Boston, and they yet continue popular. Like his more famous competitor, Francis Bret Harte, he was a native of Albany, N. Y., and was born in that city on September 25, 1841.

CALEB S. BRAGG.

Caleb S. Bragg, of the old firm of Van Antwerp, Bragg & Co., now the American Book Company, of New York, Cincinnati and Chicago, dropped dead of heart disease on a Pennsylvania train Thursday morning while on his way from New York to Cincinnati. Mr. Bragg was one of the best known publishers of school books in the United States, and recently left Cincinnati to locate in New York as one of the managing directors of the American Book Company. He was seventy years old, and leaves several children and a fortune estimated at $3,000,000.

Benjamin Banker, editor and proprietor of the Kennebec *Democrat*, died in Waterville, Me., Thursday, fifty-six years old. He was formerly editor of the *Pine Tree State* and the Fairfield *Journal*; was city marshal for about five years and for two years had been an assessor. He had also held the office of State Fish and Game Warden.

Dr. William H. Burk, who was for a dozen years editorial associate of the *Public Ledger* in Philadelphia, died on Saturday evening, March 3. He was born in December, 1858.

Col. Alfred W. Taylor, business manager of the Philadelphia *Times*, died suddenly of heart disease on March 4, at his home in West Philadelphia, Pa. He was forty-eight years old, and had been connected with the *Times* for about fifteen years.

J. Arthur Nelson, paper box manufacturer, Brockton, Mass., is dead.

C. H. Parker, of C. H. Parker & Co., printers, Wolfboro, N. H., is dead.

W. C. Ritchie, president of W. C. Ritchie & Co., paper box manufacturers, Chicago, Ill., is dead.

On February 27 Henry Lathrop, eldest brother of William E. Lathrop, the New York representative of the Russell Paper Company, died from hasty pneumonia. He was born in Kinderhook, N. Y., nearly seventy-two years ago. He lived in New York for thirty years. He was well known in banking and insurance circles, and had been connected with the New York Life Insurance Company for the last seventeen years.

Personals.

J. E. Howland, of the Howland Paper Company, Sandy Hill, N. Y., has been elected supervisor of his town.

In Town.

H. M. Whitney, Boston, Mass.; Mr. Rogers, South Manchester, Conn.; G. C. Knowlton, Watertown, N. Y.; H. G. Bixby, Nashua, N. H.

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL, FRIDAY, March 9, 1894.

THE MONEY MARKET.—The market for stocks has been irregular and disturbed, most of the moving shares closing at lower figures. Syndicate transactions in bonds and in connection with pending reorganizations have somewhat curtailed the offerings of call loans by private bankers, but institutions offer very freely. Rates seldom advance to 1½ per cent. at the Stock Exchange, a large proportion of the business being done at 1 per cent. The time loan market is quoted at 2 per cent. for sixty days, 3 per cent. for six months and 4 per cent. for eleven months. The offerings are largely in excess of demand. The market for commercial paper is dull, owing to the light offerings of desirable bills. Prime indorsed bills receivable are quoted at 3@3½ per cent., choice single name paper at 4@4½ per cent. and good at 5@6 per cent. The market for sterling was firm with a moderate business. There was much uncertainty as to the amount of Saturday's gold shipments. Bills were scarce. Posted rates were $4.88 for sixty days and $4.89½ for sight. Actual rates were $4.87@4.87¼ for sixty days and $4.88½ @4.89¼ for sight.

THE PAPER TRADE.—The demand for paper is not sharp. In some respects it shows an improvement, but in none of the grades is business active. Writing mills are running about as they have been, as are Book mills. News mills are fairly busy, but there is a steady pressure on prices. Manillas are in fairly good demand, but Straw Wrapping is quiet and prices are low. Strawboards are quoted at $24 f. o. b. at the mill.

JUTE BUTTS.—The market is very quiet. The statistical position as given by the March circular of Cabot, Ray & Co. is as follows: Imports to the United States, 1891, 560,692 bs.; 1892, 232,387 bs.; 1893, 331,738 bs. Consumed in the United States, 1891, 567,972 bs.; 1892, 222,609 bs.; 1893, 368,336 bs. Stock on hand, New York and Boston, January 1, 1894, 6,150 bs. Imported, New York and Boston, since January 1, 1894, 43,668 bs.; 1893, 56,189 bs.; 1892, 32,166 bs. Stock, New York and Boston, March 1, 1894, 4,392 bs.; 1893, 33,481 bs.; 1892, 24,657 bs. On passage for United States, February 22, 1894, 88,287 bs., and by cable to February 28, 1894, ——; 1893, 270,773 bs.; 1892, 157,692 bs. Visible supply to July 1, 92,679 bs.; 1893, 304,254 bs.; 1892, 192,349 bs. Consumption since January 1, 1894, 45,426 bs.; 1893, 65,476 bs.; 1892, 40,479 bs. Delivered to consumers past thirty days, 44,276 bs.; 1893, 36,804 bs.; 1892, 29,948 bs. The same circular says of the market: "Market for the month has been without feature. Sales light on spot and nothing in futures, Calcutta market remaining firm at high prices. Late crop reports are unfavorable. Cost of import, 1⅝@1.65c. paper quality, 2@2⅛c. bagging quality. Deliveries to consumers for the month have been to bagging manufacturers 41,976 bs.; paper manufacturers, 2,300 bs.; spot stock, 4,392 bs. paper quality, Supply to July 1: Paper quality, 13,692 bs.; owned by bagging manufacturers, 78,987 bs."

WOOD PULP.—Ground Wood is in fair call, but prices do not grow any stronger.

WOOD FIBRE.—There is a fair movement in chemical fibre, but individual orders are not large. Domestic Soda is quoted at 3@3¼c. for Bleached. Domestic Sulphite is quoted at 2½@3c., as to quality, for Unbleached, and 3½@4c. for Bleached. Foreign grades are quoted as follows: Unbleached Pine, soda process, 2.60@2.75c.; Bleached, same process, 3½@3.90c.; Unbleached, sulphite process, 2.60@3.10c.; Bleached, do., 4@4½c.; Bleached Straw Pulp, 4@4½c. Imports this week aggregated 411 tons, being 341 tons from Christiania, 35 tons from Hull and 35 tons from Rotterdam.

FOREIGN RAGS AND PAPER STOCK.—There is more inquiry for foreign rags, but the actual business done is not much heavier, consumers restricting purchasers very closely to actual wants. Among the sales, which have been for the most part small, is one for 250 tons Japanese Blues on p. t. The general spot quotation on this grade of rags is 1½c. Imports for the week aggregated 5,052 bales and 411 tons, being 4,699 bs. rags, 411 tons chemical fibre and 353 bs. manillas. Ports of shipment and quantities were as follows: Alexandria, 1,249 bs. rags; Antwerp, 172 bs. manillas; Bremen, 19 bs. manillas; Calcutta, 342 bs. manillas; Christiania, 341 tons chemical fibre, 98 bs. manillas; Dundee, 12 bs. manillas; Genoa, 765 bs. manillas; Hamburg, 55 bs. rags, 122 bs. manillas; Hull, 35 tons chemical fibre; Kobe, 1,385 bs. rags; Liverpool, 308 bs. manillas; London, 608 bs. manillas; Marseilles, 61 bs. rags, 473 bs. manillas; Rotterdam, 35 tons chemical fibre, 383 bs. manillas; Stettin, 1,949 bs. rags, 232 bs. manillas.

DOMESTIC RAGS.—Whites are in steady demand, and deliveries are about sufficient to absorb collections, prices ranging about 3½c. Soiled Whites are quiet at 2¼c., and No. 2's are dull at 1@1¼c. Canvas is dull, with 3½c. quoted for Cotton.

BAGGING, &c.—The market is quiet, and there are no large quantities moving. We note sale 50 tons No. 1 Gunny at $1.15c., which is the figure generally quoted. We also note sales 50 tons No. 1 Mixed Bagging at 82½c., 35 tons Bright Buriaps at 1¾c.; 10 tons New Jute Cloth Cuttings at 1¾c., and 50 tons No. 1 English Manilla Rope at 2.20c. Imports for the week aggregated 3,534 bales, being 172 bs. from Antwerp, 19 tons from Bremen, 342 bs. from Calcutta, 98 bs. from Christiania, 12 bs. from Dundee, 765 bs. from Genoa, 122 bs. from Hamburg, 308 bs. from Liverpool, 608 bs. from London, 473 bs. from Marseilles, 383 bs. from Rotterdam, and 232 bs. from Stettin.

OLD PAPERS.—Trade is quiet. We quote: No. 1 Hard White Shavings, 2¼c.; No. 1 Soft White do., strictly free from wood, 2⅛@2½c.; Soft White do., ordinary, 2@2¼c.; Old Ledgers, 2¼c.; Solid Printed Books, 1½c.; Mixed Shavings, No. 1, 1.20@1.25c.; Mixed Shavings, No. 2, ¾@1c.; Extra No. 1 Manillas, 1¾@1.30c.; No. 1 Manillas, ordinary, 1c.; No. 2 Manillas, .85@⅞c.; Light Book Stock, ⅞@1c.; Folded News, 45@50c.; Mixed Papers, 50@55c.; Commons, 45@50c.; Bogus Manillas, 65@70c.; Straw Clippings, 60@65c.; Binders' do., 55c.

STRAW.—There is a moderate trade and the market is about steady. We quote: No. 1 Long Rye at 60@65c.; No. 2 Long Rye at 55@60c.; Short Rye at 45@55c.; Oat at 50@55c.; Wheat at 40@45c.

ROSINS.—Rosins are quiet and prices are nominal. We quote: Common to Good Strained, $1.32½@1.35; E, $1.40@1.42½; F, $1.65; G, $1.85; H, $2.15; I, $2.45@2.50; K, $2.85@2.90; M, $3.10; N, $3.25; W. G., $3.45.

CHEMICALS.—The market for paper makers' chemicals does not grow active. Under date of February 21 Peter R. McQuie & Son speak as follows of the Liverpool market: "During the past month chemicals have ruled extremely quiet, the absence of any demand being exceedingly disappointing. Of course plenty of reasons are given for the prolonged depression—as, for instance, the depreciation of silver, the uncertainty as to the United States tariff bill, &c.—but we can only deal with the actual state of affairs, and we have to report a very dull market. There is, however, a fair prospect of an early improvement, and with the advent of the spring we look for better business. That prices, in spite of continued dullness, should not have given way any more than noted in the list below, seems a favorable omen, and leads us to anticipate more buoyancy ere long. We quote to-day: Bleaching Powder, £7 10s. per ton, softwood; £7 15s. to £8, hardwood; Caustic Soda, 60 per cent., £7 15s. to £8 10s. per ton; 70 per cent., £8 15s. to £9 10s. per ton; 74 per cent., £9 15s. to £10 10s. per ton. Soda Ash, Leblanc quality, £4 to £4 5s. per ton, according to test; Ammonia Alkali, 58 per cent, £3 15s. in bags, £4 in casks. Soda Crystals, £2 17s.6d. per ton in barrels; kegs, 10s. extra." In the New York market Bleaching Powder has been in better demand, as supplies for prompt delivery are limited; Alkali has been in fair request; Caustic Soda has been moving well and Sal Soda is in better demand, owing to the lower prices noted last week. During the week there were sales of 50 cks. Bleach, spot, at 2,30c.; 25 tons Soda Ash, at 1.50c.; 100 tons 58 per cent. Alkali at 1.10@1.20c.; 50 drums Caustic Soda at 2.75@2.80c.; 5 cks. German Ultramarine at 17¼c.

CHINA CLAY.—While the demand indicates a fair jobbing distribution, the close adherence to actual necessities on the part of purchasers keeps the volume of trading within narrow confines. Stocks of all grades are in ample supply and prices are fairly maintained at previously quoted range.

TWINES.—The volume of business is fair. We quote: Cordage—Manilla Rope, half inch, 12¼c.; Sisal Rope, half inch, 11¼c.; New Zealand Rope, half inch, 6¼c.; Jute Rope, half inch, 6c.; Sisal Hay Rope, 6¾c.; Sisal Lath Yarn, fine, 9¼c., and medium, 9¼c.; Jute Lines, 6½c.; Jute Ready, 6c.; New Zealand Hay Rope, 6¼@7¼c.; New Zealand Lath Yarn, fine, 9¼c.; medium, 8¾c. Twines—Hemp, 4½ and 6 B Russia, 12c.; 4½ and 6 A American, 12c.; 4½ and 6 D Jute, 9½c.; 4½ and 6 L Jute, 9c.; Hemp Ball, 18 B C, 17c.; 18 C, 15c.; Russian Hemp Hay Rope, 9c.

COAL.—The market for anthracite is quiet. At the East it is said that all sorts of inducements are offered to get the trade to buy, but dealers think that it is for their best interests to hold off. The markets at New York and Philadelphia are quoted as quiet but firm; small sizes are scarce and held at good figures. Soft coal has been put on a low basis of cost in many States, owing to reductions in wages for mining. Shippers to the seaboard have agreed to a reduction in the schedule of f. o. b. prices in advance of any competition from outside coals.

EDWIN BUTTERWORTH & CO.,
MANCHESTER ENGLAND,
PACKERS OF ALL KINDS OF
Paper Stock, Cotton Waste and Buffalo Sizing, Wood Pulp, Moist and Air Dry Pulp, Soda and Ground Pulp,
83 GUNNY BAGGING, &c.
OFFICE IN NEW YORK:
Vanderbilt Building, No. 132 Nassau Street,
JAMES PIRNIE, A. S. DEMAREST, Managers.

WATERBURY
Felts and Jackets,
MANUFACTURED BY
H. WATERBURY & SONS CO.
ORISKANY, N. Y.
Adapted to *every* grade of paper, from the *finest* to the *coarsest*.
The Largest Manufacturers of Paper Makers' Felts in the World.
Our wet machine or pulp felts are *unequaled* for *durability*.
For WRITING and LEDGER PAPERS We warrant a felt equal to anything imported.

PRICES CURRENT.

NEW YORK MARKET.

Paper Market.
DEALERS' SELLING PRICES.

Ledger and Record	$0.18	@	$0.94
Flat Caps, superfines	14	@	16
Flat Caps, fines	11½	@	13
Flat Caps, engine sized	7½	@	9
Blotting, American	8	@	15
Blotting, English	17	@	....
Book, super sized and calendered	6	@	9
Book, super sized and tinted	6	@	7½
Book, extra machine finish	5½	@	6
Book, machine finish, low grade	5	@	5½
News, No. 1	4	@	4½
News, rag and wood	3	@	3½
Poster	5	@	7
Hanging, superfine, No. 1	8	@	10
Hanging, superfine, No. 2	6	@	8
Hanging, machine satin	4	@	4½
Hanging, white blank, No. 1	4	@	4½
Hanging, curtain	3½	@	4
Hanging, brown	2½	@	3
Colored papers, double mediums	6½	@	8
Colored papers, glazed medium	7½	@	8½
Colored papers, tobacco	8½	@	9½
Colored papers, tissues, 20×30, ℔ ream	1.10	@	1.35
Tissues, black, 20×30, ℔ ream	1.40	@	1.50
White tissue, 20×30, ℔ ream	85	@	1.00
White tissue, 24×36, ℔ ream	1.20	@	1.50
Manillas, Flour sack, cream	10½	@	....
Manillas, Flour sack, drab	9½	@	11
Manillas, Rope, unbleached No. 1	9½	@	11
Manillas, Rope, unbleached No. 2	7½	@	9
Manillas, No. 1, light weight	6½	@	6½
Manillas, No. 1, heavy weight	6½	@	6½
Manillas, No. 2	5	@	6
Manillas, Bogus	2½	@	3½
Wrapping Parchment	16	@	20
Tissue Manillas, full count, weight and size, 24×36, other sizes in proportion	75	@	80
Hardware, light colored, No. 1	9	@	10
Hardware, No. 1, glazed, tarred	7	@	8
Hardware, No. 1, glazed	4½	@	5
Binders' Boards, ℔ ton, No. 1	70.00	@	90.00
Binders' Boards, ℔ ton, No. 2	40.00	@	50.00
Strawboards, air dried, No. 1, ℔ ton	47.50	@	....
Strawboards, steam dried, No. 1, ℔ ton f. o. b. mill	....	@	24.00
Straw Wrapping, basis, 15×20, 15½ lbs., 20 sheets—			
36×40, from 38 to 42 lbs. ℔ rm	85	@	....
30×40, from 30 to 34 lbs. ℔ rm	....	@	72
24×36, from 24 to 26 lbs. ℔ rm	....	@	60
22×32, from 24 to 26 lbs. ℔ rm	56	@	....
20×30, 21 lbs., ℔ rm	....	@	44
20×30, from 14 to 17 lbs. ℔ rm	36	@	....
16×22, from 12 to 13 lbs. ℔ rm	28	@	....
18×28	....	@	32
15×20, 10 lbs. ℔ rm	17	@	19
15×20, from 7 to 8½ lbs. ℔ rm	17	@	19
14×18	....	@	15
12×16	....	@	13
11×15	....	@	11
Straw Wrapping, ℔ lb., heavy weight	1.75	@	1.85
Straw Wrapping, ℔ lb., light weight	1¾	@	....
Cigarette, Straw Tissue, per case of 100 boxes, 50 books to the box, 300 sheets to the book	21.00	@	30.00
Tea Papers, 16 sheet quires—			
12×18	18	@	20
14×20	22	@	....
Card Middles, ground wood	5½	@	6¼
Card Middles, long fibre wood	8½	@	9
Card Middles, rag and wood	6	@	9
Pulp Lined Boards, single manilla, No. 100 and heavier	42.50	@	....
Pulp Lined Boards, double manilla, No. 100 and heavier	47.50	@	....

Woolen Rags.

Comforter Stock	8	@	9
White Woolens	9	@	10
Blue Gray Stockings	7	@	8
White Stockings	15	@	16
Blue Flannels	6	@	7
Reds, old	7½	@	8
Reds, new Shirt Clippings	20	@	21
Mixed Softs, free of Carpets	7½	@	8
Seamed Cloth	3½	@	4
Skirted Cloth	2½	@	2
New Cloth Clips	9	@	11
New Satinets, clean stock	1¼	@	1½
Satinets, old	65	@	75
Seams	1	@	1¼
Delaines, stripped for extract	2½	@	3½
Blankets, Woolen	2½	@	2½
Wool Carpets	3	@	....
White Linseys	3	@	3½
Mixed Linseys	1½	@	....

Rags, Rope and Bagging.

White Shirt Cuttings, No. 1	6	@	6¼
Mill Assorted Whites	4	@	4½
Unbleached Muslins	5	@	5¼
City Whites, No. 1	3½	@	....
New Seconds, light	2½	@	3
New Seconds, dark	2¼	@	2½
No. 2 Whites	1½	@	....
Cotton Canvas, No. 1	4½	@	....
Linen Canvas, No. 1	....	@	4
Country Mixed, free of Woolens	75	@	1
Seconds (City)	90	@	1
Colors, ℔ 100 lbs	....	@	....
Manilla Rope	2.50	@	....
Manilla Rope, tarred	....	@	2
Gunny Bagging, No. 1	....	@	1½
Gunny Bagging, No. 2	90	@	1
Burlap Bagging, No. 1	1	@	1¼
Kentucky Hemp Bagging	....	@	....
Tar Shakings	1¼	@	1½
Hemp Twine Stock	2½	@	....
Jute Waste	¾	@	1

Japanese Rags.

Blues, Hiogo	2¼	@	....

Pulps and Fibres.

Ground Wood, domestic, delivered	1	@	1.35
Ground Wood, foreign, ex dock	....	@	....
Soda Fibre, domestic, unbleached	....	@	....
Soda Fibre, domestic, bleached	3	@	3½
Soda Fibre, foreign, unbleached	2.65	@	3
Soda Fibre, foreign, bleached	3½	@	....
Sulphite, domestic, unbleached	2.60	@	3
Sulphite, domestic, bleached	3½	@	3¾
Sulphite, foreign, unbleached	3	@	3½
Sulphite, foreign, bleached	4	@	4½

Chemicals, Coloring Materials, &c.

Alkali, 58 ℔ cent	1.55	@	1.75
Alum, lump	1.65	@	....
Alum, ground	1.75	@	....
Alum, Keystone	1¾	@	¾
Alum, Diamond	....	@	3½
Alum, pearl	2¾	@	3½
Alum, porous	2¾	@	3½
Alum, Merrimac porous	2	@	....
Aluminous Cake	....	@	1¾
Anti-Chlorine	....	@	2¾
Bichromate Potash, American	....	@	10
Bleaching Powders, spot	2.15	@	2¾
Cambridge Ochre	11.25	@	....
Caustic Soda, 60 ℔ cent	2.75	@	....
Clay, China, English, ℔ ton	12.50	@	17.00
Clay, China, "Star"	12.50	@	....
Clay, China, "Keystone"	10.75	@	....
Clay, South Carolina, ℔ ton	9.50	@	10.00
Clay, Terra Alba, French, ℔ ton	1.00	@	1.12½
Clay, Terra Alba, American, No. 1	95	@	1.00
Corn Starch	3	@	3½
Copperas, American	....	@	80
Extract Logwood	9½	@	....
Mineral Pulp	10.25	@	....
Orange Mineral	....	@	9½
Potato Starch	4½	@	4¾
Prussian Blue, dry	20	@	25
Prussiate Potash, American	....	@	24½
Rosins, common to good strained, ℔ bbl	....	@	1.45
Rosins, E, ℔ bbl	1.55	@	1.60
Rosins, F, ℔ bbl	1.72½	@	1.75
Rosins, G, ℔ bbl	....	@	1.80
Rosins, H, ℔ bbl	2.00	@	....
Rosins, I, ℔ bbl	2.15	@	....
Rosins, K, ℔ bbl	....	@	2.70
Rosins, M, ℔ bbl	3.00	@	3.10
Rosins, N, ℔ bbl	3.75	@	3.80
Rosins, W G, ℔ bbl	4.00	@	....
Sal Soda	1.10	@	....
Soda Ash Caustic, 48 ℔ cent	1.60	@	1.65
Soda Ash, carbonated, 48 ℔ cent	1.57½	@	1.70
Soluble Blue	40	@	55
Spanish Brown	½	@	1
Sugar Lead, white	12	@	....
Sugar Lead, brown	7	@	....
Sulphate of Alumina	....	@	2¼
Sulphuric Acid, 66 ℔ cent	1	@	1¼
Ultramarine, blue	14	@	17½
Venetian Red	1	@	1½
Vitriol, blue	5½	@	5¾
Yellow Ochre Rochelle	1.35	@	1.50

BOSTON MARKET.

Paper Stock.

White Rags, No. 1	3¼	@	3½
No. 2 Whites	2	@	....
Common Seconds	1¾	@	2
Thirds and Blues	1	@	1¼
Southern Mixed Rags	....	@	1½
Colors, country	1	@	....
Colors, city	25	@	30
New Calicoes, light	....	@	2¾
New Calicoes, dark	....	@	2¼
Shirt Cuttings, best	5¾	@	5¾
Shirt Cuttings, good	4	@	....
Shirt Cuttings, unbleached	4	@	4¼
Shirt Cuttings, unbleached No. 2	2¾	@	3
Shirt Cuttings, cheviots	2	@	2¾
Overall Cuttings, blue	....	@	3¾
Overall Cuttings, brown	2¾	@	2¾
Shoe Rags, bleached	4	@	....
Shoe Rags, unbleached	....	@	3¾
Shoe Rags, brown	3	@	....
Cotton Flannels, bleached	4	@	4¼
Cotton Flannels, unbleached	3¼	@	4
Corset Rags, drab	3¼	@	....
Corset Rags, white	4¼	@	4½
Tailors' Seconds	2	@	....
Tailors' Colors	25	@	40
Cotton Canvas	....	@	3
Cotton Canvas, No. 2	....	@	1½
Linen Canvas	....	@	2
New Canvas Cutting	4½	@	....
Insole Canvas	3	@	3½
Print Papers, best	40	@	50
Print Papers, ordinary	....	@	35
Folded News	50	@	....
Old Waste Papers	35	@	40
Manilla Paper, No. 1	1.30	@	1.35
Manilla Paper, good mixed	90	@	....
Manilla Paper, blues	75	@	....
Mixed Book Stock	1	@	1½
Books and Pamphlets	1½	@	1¾
Book Stock, light	¾	@	1
Ledgers and Letters	2	@	....
Soft Book Shavings	2	@	....
Hard White Book Shavings	3	@	....
Straw Chips	50	@	60
Shivey Bagging	1½	@	....
No. 1 Factory Bagging	1	@	1½
Burlap Bagging	1	@	1½
Burlap Bagging, large pieces	1½	@	2¼
Kentucky Bagging	1½	@	....
Mixed Bagging	¾	@	....
No. 2 Bagging	½	@	¾
Shakings, soft	½	@	¾
Tarred Shakings	1	@	1½
Standing Rigging	3	@	....
Standing Rigging, foreign	2½	@	2¾
Bolt Rope	2¾	@	....
Oakum Junk, No. 2	1½	@	1¾
Tarred Paper Junk	1.15	@	1.20
Tarred Paper Junk, inferior	75	@	....
Manilla Rope	2½	@	....
Tarred Manilla	1½	@	1¾
Hemp Strings	1½	@	2
Sisal Strings	....	@	1
Wool Strings	....	@	1
Flax Tow	¾	@	1¾
Flax Waste	½	@	1¾

Chemicals.

Alkali	1.15	@	1¼
Aluminous Cake, currency	1¼	@	1¾
Alum, American ground	2	@	2½
Alum, American lump	1½	@	2
Anti-Chlorine	3	@	3¼
Bichromate Potash, American	10½	@	....
Bleaching Powders	2¼	@	....
Blackley Blue	2.00	@	3.00
Caustic Soda, 70 ℔ cent. (for 60 ℔ cent.)	2.80	@	2.85
Clay, English, ℔ ton	14.00	@	18.00
Clay, American, ℔ ton	13.00	@	14.00
Copperas, ℔ lb	⅞	@	1
Extract Logwood	5½	@	6¼
Lime, Lockland, ℔ bbl	95	@	1.00
Prussian Blue, ℔ lb	50	@	60
Prussiate Potash, American, yellow	....	@	18½
Prussiate Potash, red	51	@	52
Rosin, common strained, ℔ bbl	....	@	....
Rosin, E	....	@	1.45
Rosin, F	1.50	@	....
Rosin, G	....	@	1.55
Rosin, extra pale	....	@	....
Sal Soda, English, ℔ lb	90½	@	.95
Soda Ash, 48 ℔ cent. caustic	....	@	1.62½
Soda Ash, 48 ℔ cent. carbonated	....	@	1.70
Soluble Blue	55	@	65
Sugar Lead, white	12½	@	13
Sugar Lead, brown	7½	@	8½
Sulphuric Acid, 60°	1¼	@	1¾
Terra Alba, ℔ ton	15.00	@	20.00
Ultramarine, ℔ lb	12½	@	15
Venetian Red, ℔ lb	1¾	@	1¾
Vitriol, Blue	5½	@	6¾
Yellow Ochre	½	@	1

Wants and For Sale.

Twenty-five words or less, one dollar each insertion. Over twenty-five words, four cents a word each insertion, up to eighty words. Cash should accompany order.

Over eighty words, or displayed advertising, will be charged for by the inch, according to our regular schedule of rates.

Answers can come in our care and will be promptly forwarded without extra charge.

WANTED—SITUATION AS MACHINE TENDer; accustomed to book, news and manilla; can give good reference. Address B., care Paper Trade Journal.

SALESMAN—CAN GIVE LARGE ORDERS TO manilla mill desiring to sell large consumers. Address, with samples, prices and commission, EXPERIENCE, care of Journal.

WANTED—SITUATION BY MILLWRIGHT; twenty-five years' experience; married; have no objections going South. Address MILLWRIGHT, care of Paper Trade Journal.

WANTED—A No. 1 DOUBLE CYLINDER machine tender; one who thoroughly understands express and water finished papers; none but competent and sober men need apply. Address EXPRESS, care Paper Trade Journal.

WANTED—POSITION BY FIRST-CLASS MAchine tender; can run any kind of paper; also No. 1 second hand; good references. Address NELSON, care of Journal.

FRANK E. KEYES, OF 122 WALNUT STREET, Lockport, N. Y., wishes to inform the public that he is now at liberty to consult with parties in anything pertaining to the manufacture of wood pulp or indurated fibre ware. Mr. Keyes is an inventor and expert in the business.

WANTED—TO LEASE, WITH PRIVILEGE of buying, paper mill in good order, with cylinder machine not less than 34 inches. Address J. H. S., Ashland, Hanover County, Va.

WANTED—POSITION AS SIZE MAKER, washerman or steam boiler tender; best of references given. Address WILLIAM McRAE, 600 Park avenue, Brooklyn, N. Y.

WANTED—SITUATION AS SUPERINTENDant or foreman in book, news or manilla mill; thoroughly versed in manipulation and coloring of stock; good references PRACTICAL, care Journal.

WANTED—SITUATION AS SUPERINTENDent or foreman, by practical paper maker, in writing, book, news or manilla mill; long experience; good references. J. E., care Journal.

SITUATIONS WANTED BY FIRST-CLASS superintendents, machine tenders and engineers; worked on all grades of paper; both slow and fast running machines; can furnish best references if required. Apply to EAGLE LODGE No. 1, Brotherhood of Paper Makers, Box 672, Holyoke, Mass.

WANTED.

Two Salesmen for the New England Trade.

Must be well acquainted with Writings and Book papers, communications strictly confidential.

Address SALESMAN,
Care Paper Trade Journal, New York.

FOR SALE—A BINDER'S BOARD MILL, TWO engines, two machines, 80 horse Corliss engine, all complete, with six acres of land, half of a mile from depot. Address or call on W. S. & I. H. WADE, Milburn, N. J.

FOR SALE CHEAP—THE WHITEMAN PULP and paper mill at Dansville, N. Y., fireproof; water and steam power and electric light; two railroads. For price, terms and cut of building address H. B. HATHAWAY, Rochester, N. Y.

A FINE OPPORTUNITY

TO GO INTO BUSINESS.

To a company that understand the coating business an offer will be made to furnish a fully equipped plant, ample room with plenty of power. Well situated for future business. Will either lease plant or take an interest in the business. Parties answering advertisement must be in position to furnish all necessary capital to buy stock and carry accounts.

Address A. B. C., care of Journal Office.

PAPER MILL MACHINERY.

One 84 inch Fourdrinier part to paper machine complete, with Gould screen.

One 74 inch Fourdrinier machine complete, Gould screen; gun metal press rolls, 15x75 inches; eight iron dryers, 26x72 inches; stack of nine chilled rolls, 72 inch face; upright reel and cone pulley cutter; Bess slitters.

One Gould screen, eight plates, 10x36 inches.
One Gould screen, eight plates, 12x40 inches.
One Barber's suction.

One 70 inch machine complete, Gould screen, Fourdrinier wire, 70x33 inches; first and second presses; eight iron dryers, 26x65¼ inches; stack five chilled rolls, four 12 inches, one 16x64 inches face; upright reel, slitter and winder.

Two new 1,000 pound Holyoke Machine Co. beaters, wood tubs.

One 1,000 pound iron tub beater.
Six beating engines, 36 inch roll, iron tubs.
One 1,200 pound Horne patent engine, new.
One rotary, 7x20, double riveted, 9-16 inch shell.
Three Sc tt & Roberts hydraulic pulp grinders.
Three Jordan engines.
Two rag cutters and duster.
Four iron dryers, 26x72 inches.

Send for catalogue of machinery, steam engines and boilers.

1,000 feet shafting, 2 to 6 inches diameter; 500 feet belting, 5 to 48 inches wide.

Parties wanting tools, stock or machinery used in a paper or pulp mill can find it here at a bargain.

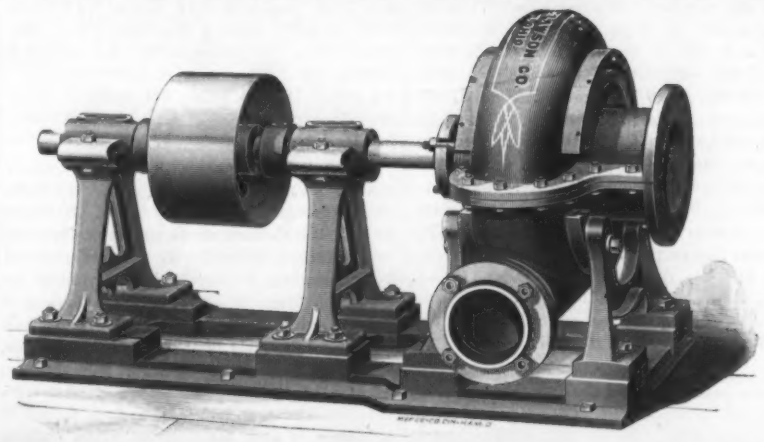
F. H. DAVIS & CO., Exchange B'd'g, Boston, Mass.

NOTICE.

My attention having been called to the fact that certain parties are infringing certain Letters Patent granted to me, to wit: No. 212,866, dated March 4, 1879, covering a new form of carpet lining, and No. 235,698, dated December 21, 1880, covering the method of and apparatus for making the same, this is to notify all such persons, whether manufacturers or dealers, that any infringement of either of said patents will be prosecuted to the full extent of the law. MOSES NEWTON, Patentee.

TREASURY DEPARTMENT, OFFICE OF the Commissioner of Internal Revenue, Washington, D. C., March 1, 1894.—Sealed proposals for furnishing paper to be used for Internal Revenue stamps for the fiscal year ending June 30, 1895, will be received at this office, *from Manufacturers of Paper only*, until the 5th day of April, 1894, at 1 o'clock P. M. Bidders are required to submit with their bids samples of the paper which they propose to furnish. Full information upon the subject will be given, or transmitted by mail in circular form, upon application to this office. Proposals should be Revenue," and marked "Proposals for Internal addressed to the "Commissioner of Internal Revenue Stamp Paper." The Commissioner reserves the right to reject any or all bids. JOS. S. MILLER, Commissioner.

THE BLACK & CLAWSON CO., MANUFACTURERS OF Paper Mill Machinery,



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Jordan Engines Refilled.

Screens, Calenders, Rag Cutters, Cylinder Molds, Deckel Straps, Paper Cutters, Screen Plates, Dandy Rolls, Stuff Box Trucks, Iron and Brass Castings.

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For a Pulp or Sulphite Mill.

FOR SALE—Well constructed dam and flowage rights, about 10,000 horse power, plentiful supply of water year round; spruce and poplar in abundance for about $2.00 at the dam; will be sold for cash or to responsible party on long time, as desired. Address SAMUEL BRADLEE, 40 Water St., Boston, Mass.

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Fourdrinier Machine. New and Modern; wire, 92 inches wide, 45 feet long; forty 2½ inch table rolls, three brass suction boxes; gun metal and rubber press rolls; thirteen dryers, 48×88; nine stack calenders, reels, cutter; Manning winder; cone pulley driving train.

THE BLACK & CLAWSON CO.,
Hamilton, Ohio.

SPECIAL NOTICE.

Hofmann's Treatise ON Paper Making.

IN 1873—twenty years ago—Carl Hofmann first published his *TREATISE ON PAPER MAKING.* He was then, and for some years had been, a practical paper maker in America. His experience in the trade abroad, as well as in this country, and his technical education and knowledge enabled him to be specially adapted for the work; hence "Hofmann's Treatise on Paper Making" took high rank at the start, and soon became *a* standard work on the subject throughout the world. It was published in English, German and French, and had wide sale in all three languages.

As years passed it became *the* standard work, and for the past decade copies have sold at large prices, often as high as $30 each, and occasionally for more money. The original book consisted of 422 pages, 8¼ by 11 inches in size.

Mr. Hofmann returned to Germany more than eighteen years ago and settled in Berlin. He established *The Papier Zeitung*, and in due course, about seven years ago, began to write his second and latest Treatise. Thus far he has printed and published probably 1,200 pages in German, and in parts of forty-eight pages, including cover, profusely illustrated by wood cuts. When finished the book will consist of about 1,600 pages (pages size same as in first book), illustrated by 1,500 wood cuts.

We have contracted to translate and publish the work in English in twenty parts, of about eighty pages each, at intervals of not less than sixty days, and at a cost of *one dollar cash, in advance, for each and every part.* When the enterprise is completed the twenty parts will sell, *unbound*, for *twenty dollars.* The binding will be extra. Subscribers can themselves have the parts bound, or have us bind them at extra expense; but it should be noted that no money will be saved by waiting until THE TREATISE is completed and bound.

We shall announce within some weeks when "PART ONE" will be ready for delivery.

Orders can be placed now, or later if preferred; and subscribers can send *one dollar* or *six dollars*, which latter would pay for six parts during a year.

We cannot accept any order that is not accompanied by the cash.

Every manufacturer of paper or pulp, every superintendent of a mill, every machine tender, every man whose life-work consists in making or selling paper in the United States, Canada, and all over the world, except Great Britain and the Continent of Europe, should send us his subscription. We will furnish each part postpaid. We will print and ship the English Edition for the European market, but cannot accept orders therefrom.

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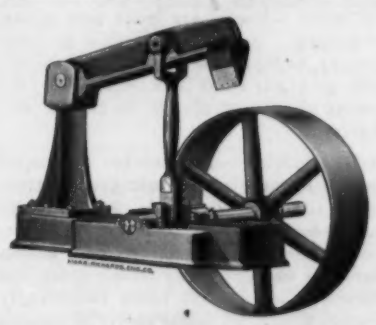

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DE PERE, WIS.,

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Eighteen Mills for Chemical Wood Pulp represented

Bleached and Unbleached; supplied in all qualities and by all processes.

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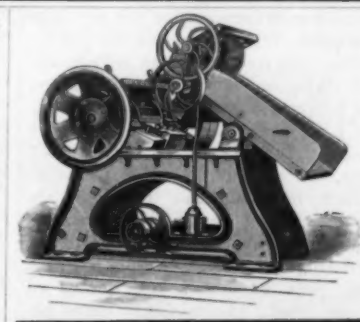

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RAG CUTTER,

TO CUT ROPE, JUTE BUTTS, BAGGING, OR ROOFING PAPER STOCK?

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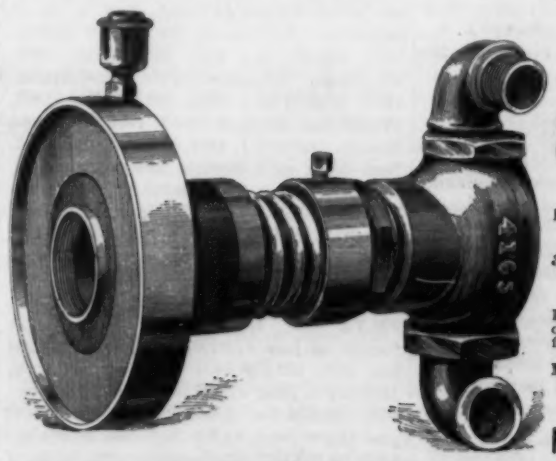

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Patented May 12, 1884, and Sept. 8, 1885.

For Rotary Paper Dryers and Revolving Cylinders.

3,000 NOW IN USE on PAPER MACHINES.

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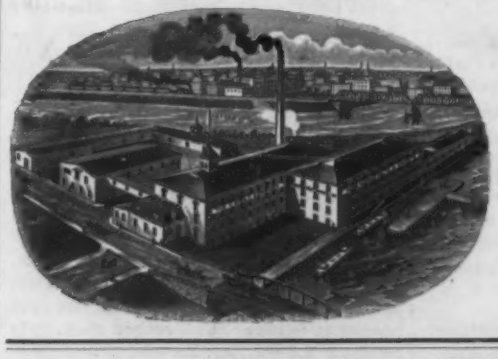

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Press Felts and Jackets for all Kinds of Paper.

TRY OUR HARPER FELTS. They are the BEST MADE for all grades of paper.

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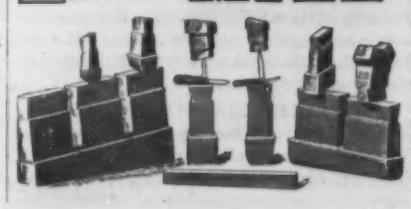

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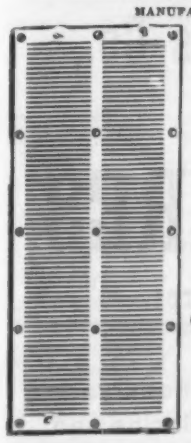

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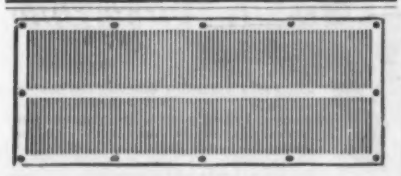

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TO

SCREEN PLATES

of SPECIAL BRASS,

MADE BY THE

Western Screen Plate Works,

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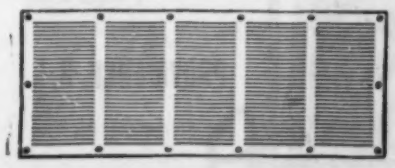

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MOUNTED ON RUBBER OR IRON WHEELS.

TRUCKS MADE TO ORDER.

WRITE FOR PRICES.

Rubber Wheels, Iron Wheels.

Casters of all Kinds.

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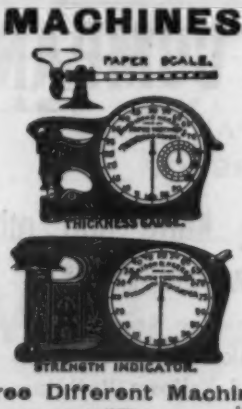

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A NEW PRINCIPLE APPLIED IN TESTING PAPER.

Thickness shown to the sixteen-thousandth part of an inch.

Used in the GOVERNMENT PRINTING OFFICE and the DEPARTMENTS at Washington.

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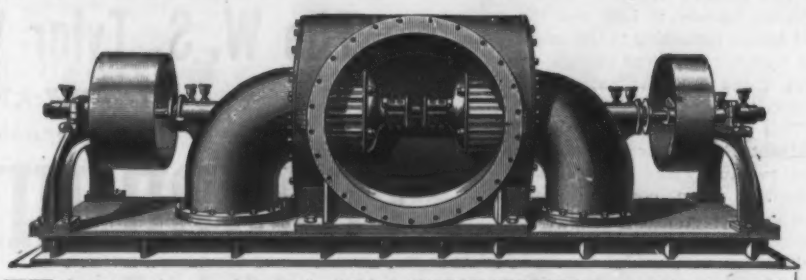
CAUTION.

All persons are liable to prosecution who make buy or use Paper Testers that confine and break paper within its edges, as my Patents cover that method.

THE VICTOR TURBINE.



THE above engraving represents a pair of 12 inch **VICTOR TURBINES** arranged on a horizontal shaft, with Cast Iron Flume, Draft Tubes, End Bearings for Shaft, and Driving Pulleys complete, all mounted upon a substantial cast iron bed plate. The entire arrangement is very complete and strictly first class in every particular. We are now prepared to furnish Victor Turbines either single or in pairs on horizontal shafts and where the situation admits of their use we recommend them.

UPRIGHT or HORIZONTAL.

In use in a large number of best Paper and Pulp Mills in this and other Countries.

TESTS IN HOLYOKE FLUME.

CYLINDER OR REGISTER GATE,

INSURING HIGHEST PERCENTAGE OF USEFUL EFFECT AT

FULL AND PARTIAL GATE.

SIZE WHEEL.	HEAD IN FEET.	HORSE POWER.	PER CENT. OF USEFUL EFFECT.
15 inch.	18.06	80.17	.8923
17½ inch.	17.96	96.35	.8980
20 inch.	18.21	49.00	.8582
25 inch.	17.90	68.62	.8584
30 inch.	11.65	52.54	.8676
35 inch.	17.29	133.19	.8497
40 inch.	16.49	148.93	.8253
48 inch.	15.51	179.29	.8202

Such results, together with its nicely working gate and simple, strong and durable construction, should favorably commend it to the attention of all discriminating purchasers.

THESE WHEELS ARE OF VERY SUPERIOR WORKMANSHIP AND FINISH.

THE VICTOR WHEEL is particularly adapted to setting on **HORIZONTAL SHAFT,** DISPENSING ENTIRELY WITH GEARS.

STATE YOUR REQUIREMENTS AND SEND FOR CATALOGUE TO THE

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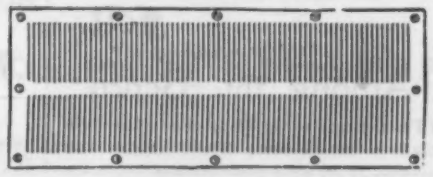

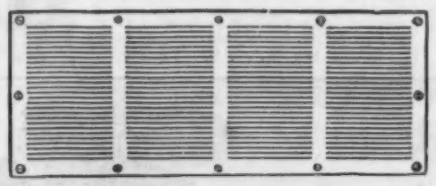

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Our new Plates are made of the

VERY BEST METAL,

and for price and durability cannot be surpassed.

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MANUFACTURER OF

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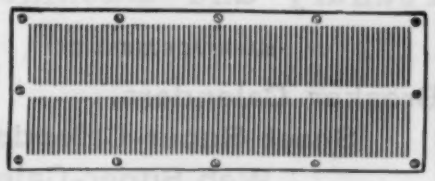

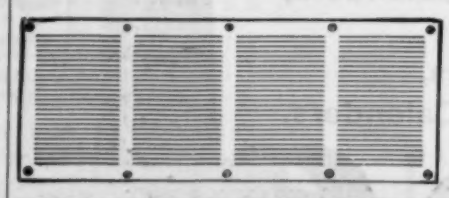

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Do you thoroughly gauge your Screen Plates to see if they are accurately cut? Why use imperfect plates when you can procure the best by sending your orders for new or old work to the APPLETON SCREEN PLATE COMPANY who are at the front as screen plate makers and repairers, using nothing but the best of brass and bronze in their plates and making accuracy of work their motto.

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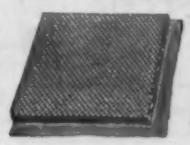

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Asbestos Prepared Roofings.

(Specially adapted to Paper Mills).

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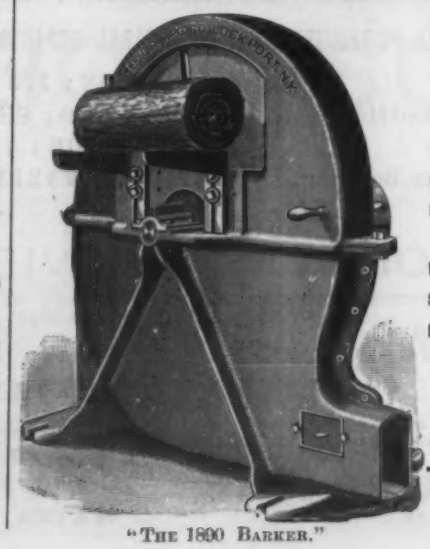

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Stuff Pumps,

Double and Triple Plunger Pumps, for general use in Pulp and Paper Mills.

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For Mining and Concentrating Works, Coal, Stone and Ore Screens, Gas and Water Works, Clay and Sand Screens, &c.

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The only Mill west of Ohio.

We have demonstrated our ability to compete in

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and solicit a trial order, especially for writing and book papers.

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8—Medals and Diplomas—8

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Pressure, Vacuum And Pyrites

ACID PLANTS

Of Highest Capacity Manufactured by

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CARTHAGE, N. Y.

Manufacturing News.

EASTERN STATES.

The wages of girls employed in the mill of the Beebe & Holbrook Company, Holyoke, Mass., have been reduced 15 and 25 cents per day.

MIDDLE STATES.

Palmer & Johnston have bought back their mill at Sidney, N. Y., which was sold to the United Paper Company, and have started it up.

The International Pulp Company, Gouverneur, N. Y., has bought the McAllister water power, just above Hailesboro.

The United Indurated Fibre Company, Lockport, N. Y., has reduced the wages of its employees 10 per cent., and this is said to be the second reduction since last fall.

The Racquette River Paper Company, Potsdam, N. Y., has bought near Tupper Lake 2,000 standard of logs for use at its paper and pulp mill, and is having them shipped by the train load over the Northern Adirondack, New York Central and R. W. & O. railroads. This course was necessitated by running short of pulp timber for winter use. It had logs in the river, but owing to an inadvertence of some of the mills in sorting and passing logs along, and also to the sudden freezing of the river in the fall, the company was caught with a short supply.

The T. E. Sterne Paper and Power Company, Chatham, N. Y., will, in addition to running the Empire Mills, arrange for the development of an electric light and power plant on its property.

WESTERN STATES.

The Carpenter Paper Company, Omaha, Neb., has amended its articles of incorporation to make the capital stock $200,000, divided into 2,000 shares.

The Mineral Point Linen and Fibre Company, Mineral Point, Wis., has secured the appointment of a receiver for the purpose of perfecting its plant and getting it into profitable operation.

The F. Gray Company, manufacturer of felts, Piqua, Ohio, has elected these officers: President, F. Gray; vice-president, F. M. Atterholt; secretary, H. C. Nellis, and treasurer, W. C. Gray.

The Delaware Paper Company will start up the Delaware Paper Mills at Stratford, near Delaware, Ohio.

The F. J. Lewis Roofing and Manufacturing Company is building a mill at Omaha, Neb., to make roofing and building paper, &c. It is expected that the mill will be ready to start up by April 1.

The improvements on the No. 2 mill of the Marinette & Menominee Paper Company, at Menominee, Mich., have been completed. Considerable new machinery has been put in; a new rag and bleach room has been constructed and a boiler house has been built.

SOUTHERN STATES.

The Tytus-Garner Paper and Manufacturing Company has filed a bill in chancery at Memphis, Tenn., against Robert W. and James W. Cole, of Memphis, the Tytus Paper Company and the Gardner Paper Company, the last two concerns being incorporated under the laws of Ohio. The complaint sets forth that on March 30, 1893, the Tytus Paper Company and the Gardner Paper Company sold to the Tytus-Gardner Paper and Manufacturing Company certain franchises owned by the Tennessee Paper Company, composed of R. F. Cole and R. F. Brooks, and to Brocks & Cole. Plaintiff alleges that the Tytus Paper Company sold to to the Tennessee Paper Company certain goods and took its acceptance for $1,166.47, and is due a balance on account of $925.75. Cole and Brooks received the goods. On March 30, 1893, the Gardner Paper Company assigned an account for $100.76 for goods sold the Tennessee Paper Company. The complainant asserts that Brooks & Cole circulated false reports as to the solvency of the Tennessee Paper Company, on the strength of which the Tytus Paper Company sold it the goods mentioned. The Tytus Paper Company replevied the goods, and at the sale realized $1,441.29, leaving a balance of $650.93. Complainant claims to have succeeded to the debt due the Tytus Paper Company. A decree is asked against Robert F. Cole, setting aside the transfer of property on Breedlove avenue to his father, James W. Cole, and a sale of the same to satisfy the claims specified in the bill. The amount alleged to be due is $751.69.

Forging Checks.

Bank forgers have been doing an extensive business in raising checks in Mississippi recently. The Capital, State and Jackson banks, of Jackson, have each had an experience with them. In each instance a check was purchased on a New Orleans bank for $18, and successfully raised to $1,800. All were promptly paid.

The perforated part of the check was filled with pulp, and then carefully ironed over, presenting a surface which required a strong magnifying glass to detect anything wrong. With another perforating machine the desired figures were cut into the paper. The New Orleans banks have given notice that they will not cash drafts hereafter unless notice of their issue is sent.

British Exports of Alkali and Bleach.

The following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the past year, in cwts., as compared with 1892:

ALKALI.

COUNTRY.	1892.	1893.
Russia	265,600	305,340
Sweden and Norway	86,800	133,284
Germany	98,300	134,285
Holland	56,100	89,381
France	42,300	47,196
Spain and Canaries	262,800	231,190
Italy	181,300	201,284
United States	3,715,600	3,466,481
Australasia	151,300	142,056
Br. North America	233,500	216,448
Other countries	792,000	868,749
Total, cwts.	5,885,600	5,835,664

BLEACHING POWDER, ETC.

COUNTRY.	1892.	1893.
United States	925,200	786,623
Other countries	564,500	541,046
Total, cwts.	1,489,700	1,327,669

Steam Piping.

In Great Britain wrought iron fittings are still exclusively employed for joining wrought iron pipe. Moreover, cast iron pipe, flanged and bolted together, is still used in steam piping, no wrought iron pipe larger than 2 inches having yet come into general use, although made by English manufacturers in limited quantities for special purposes.

In this country cast iron pipe has long since been discarded for this service, the universal custom being to employ wrought iron pipe and cast iron fittings. With our leading manufacturers of wrought iron pipe 14 inches is a regular size in general use, and still larger sizes are produced when specially ordered. In compactness, strength and symmetry the American system of piping is not only superior to the English system, but it is much more economical.

Hitherto, in all foreign installations of the Grinnell automatic sprinklers by Dowson, Taylor & Co., Limited, this costly and cumbrous system of cast iron piping has been employed; but now this house, with extensive shops at Manchester, executive offices at London, and with branch establishments at Glasgow, Leeds, Paris, Sydney, Melbourne and Bombay, has decided to adopt the American system of piping. Having acquired the right to build machines, under the patents of Frederick Grinnell, for tapping cast iron fittings, the mechanical manager of the above firm, John Taylor, came to this country recently upon a special mission, namely, to look into the mechanical details pertaining to the manufacture of the superior cast iron fittings, which have been made at Providence, R. I., on the Grinnell tapping machines.

This important step on the part of an eminent English firm, says the *Standard*, may eventually lead throughout the United Kingdom to a complete revolution in methods of piping, whether for steam or fire extinguishing apparatus. To be sure, a radical change will not be accomplished in a day, but as early as practicable cast iron fittings with the above firm will supersede wrought iron fittings, and large size wrought iron pipe will displace cast iron flanged pipe in the execution of their contracts; and in due course of time, in view of the manifest superiority of the American system of piping, and of the saving effected thereby, its universal adoption abroad ought naturally to follow.

THE "Hamilton" Felt.

"Best and Most Economical Made."

Among the Score

of Felts offered to the trade, the "Hamilton" stands without a peer. Thoroughly reliable, it is sold at the same prices as inferior makes. Lots of Felts, but only one "Hamilton."

In ordering mention kind of stock used, quality of paper made and speed of machine.

Shuler & Benninghofen, Hamilton, Ohio.

The W. S. Tyler Wire Works Co.,

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MANUFACTURERS OF

FOURDRINIER WIRES,

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EXCELSIOR BOILER FEEDER — AND — Watson Jet Pump.

FOR Stationary, Marine and Locomotive USE.

For simplicity and durability it has no equal. It is not automatic, but it has had the severest test, and it has been used extensively on Traction Engines, Dredging Machinery and Boats, and the current of water is not broken by the motion of water or a great jar, consequently it has overcome this difficulty, without the use of valves or sliding tubes used by the automatic. It being used by many of the largest Engine Manufacturers in the States for two or three years is evidence of its merits. A trial solicited. Send for Price Lists and Discounts.

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MANUFACTURERS OF

Breaker Calenders,
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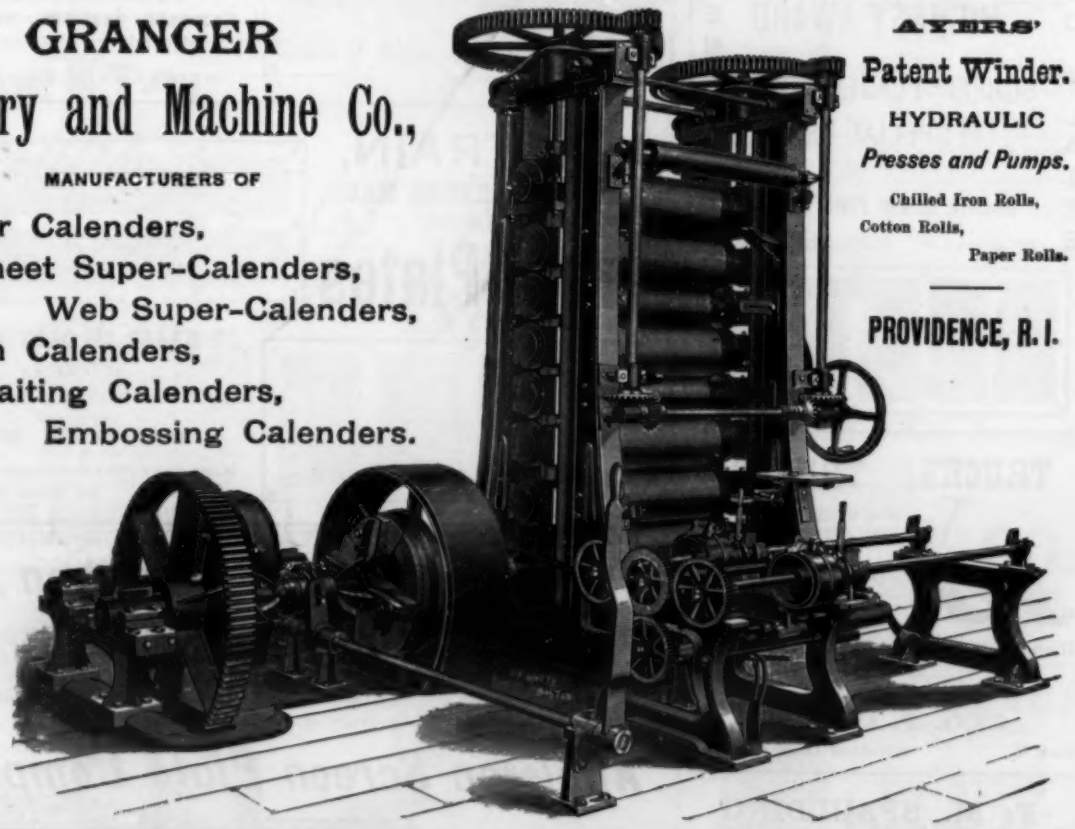

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HYDRAULIC Presses and Pumps.

Chilled Iron Rolls, Cotton Rolls, Paper Rolls.

PROVIDENCE, R. I.

The American Talc Co.,

MANUFACTURERS OF A

SUPERIOR QUALITY OF MINERAL PULP OF ALL GRADES,

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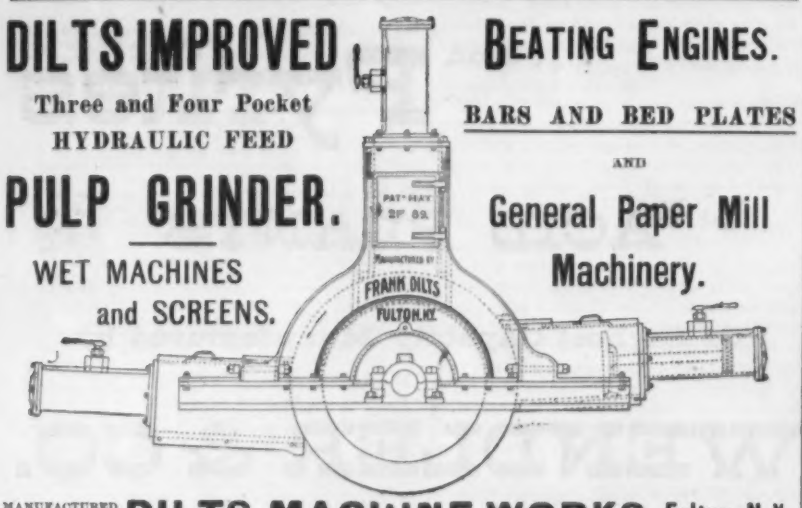
DILTS IMPROVED Three and Four Pocket HYDRAULIC FEED PULP GRINDER.

WET MACHINES and SCREENS.



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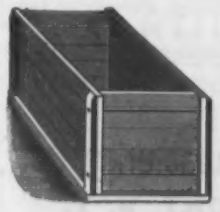

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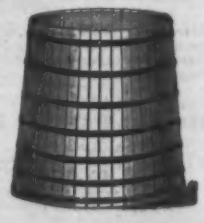

General Notes.

From July 23 to the end of December an international exhibition, devoted to all branches of the paper industry and the book trade, will be held at the Palais d'Industrie, at Paris.

During the coming week the Crocker Manufacturing Company, Holyoke, Mass., will make its papers in the following described colors: Robin's egg blue, light green, fawn, canary, yellow, tea, café, terra cotta, light buff and primrose.

D. S. Walton gave a dinner at The Waldorf on March 7 to the board of directors of the National Folding Box and Paper Company. There was good feeling galore, good speaking and a good time. The directors of the company are: D. S. Walton, president; T. L. Cornell, vice-president; J. S. Nugent, secretary; F. H. Benton, treasurer; Geo. West, H. S. Munson, J. F. Romig, E. S. Cornell and E. B. Munson.

This week there was published the fact that the American Manufacturing Company had taken judgment for $508 against John L. Taylor, a paper stock dealer of this city. The matter arose over a dispute as to storage charges, against which Mr. Taylor thought he had a counter claim. The company brought suit in the City Court. Mr. Taylor supposed that he had twenty days to answer instead of six, and laid the matter aside for later consideration. Judgment was taken by default. The matter has since been arranged, and it is probable that the suit will be settled.

The Gardner Pulp Company, Gouverneur, N.Y., manufactures asbestos pulp and fibrous talc for paper makers' use. It owns the original agalite mines, and F. W. Streeter, secretary and treasurer of the company, built the agalite mill and operated it for the first seven years, and afterward was instrumental in building other mills for the purpose, and therefore has an experience which enables him to be an expert at the business. This company is not in the syndicate, and while it has nothing to say against competing products, it has been ready to supply a first-class material at a reasonable margin of profit. The fire which destroyed the mill of the company on the night of the 5th inst. may impede the operations of the company for awhile, but it may be able to fill orders for its mineral pulp from a large stock on hand in its storehouse at the time of the fire.

A test made on three Adams patent upright water tube boilers of 225 horse power each, a total of 675 horse power, at the works of the Falcon Tin Plate and Sheet Company, Niles, Ohio, by D. Ashworth, M. E., of Pittsburg, showed the following most excellent results:

Duration of test, seven hours.
Fuel—Low grade bituminous slack, hand fired.
Horse power developed from 212°, .947.
Percentage moisture in steam, six-tenths of 1 per cent.
Water evaporated per pound, combustible from 212°, 9.74 pounds.
Temperature escaping gases, 467°.
Temperature of feed, 200°.
Average steam pressure, 86 pounds.

At no time were the boilers allowed to blow off steam. As a result of the test the Falcon Tin Plate and Sheet Company gave the Adams Boiler Company, of Cleveland, Ohio, an order for one boiler of 500 horse power, to be fitted with automatic stokers.

N. P. Bowsher, South Bend, Ind., is now moving into his new factory in the southern part of that city. The details are not given, but it is understood that the plant is very complete and commodious. The buildings are located on a 5 acre tract of land, with switch connecting with three leading lines of railroad. There is a duplicate boiler plant, a complete steam heating equipment, an independent electric lighting plant, city water and sewage connection and other features which go to make up a model factory. Mr. Bowsher's name is familiar to paper manufacturers and indeed to water power users in general through his well-known speed or motion indicator and also through his business in mill cogs, and he states that he expects to give this branch of his trade even closer attention than heretofore. During removal from the present quarters there will be no abatement in the customary prompt handling of orders. Mr. Bowsher has been in the present location for twelve years, gradually but surely increasing the business, until the quarters became entirely too small.

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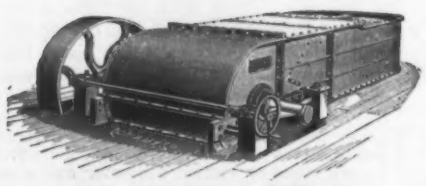

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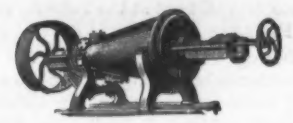

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NEW HAMPSHIRE—Glen Manufacturing Co., Berlin Falls, 3; Sugar River Paper Co., Claremont, 1; Wilder & Co., Ashland, 1.

MAINE—Umbagog Pulp Co., Livermore Falls, 2; Bangor Paper Co., Orono, 4; Jay Paper Co., Jay, 1; Rumford Falls Paper Co., Rumford Falls, 29; Hollingsworth & Whitney, Gardiner, 1.

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VIRGINIA—Columbia Paper Co., Buena Vista, 2.

INDIANA—Anderson Paper Co., Anderson, 3.

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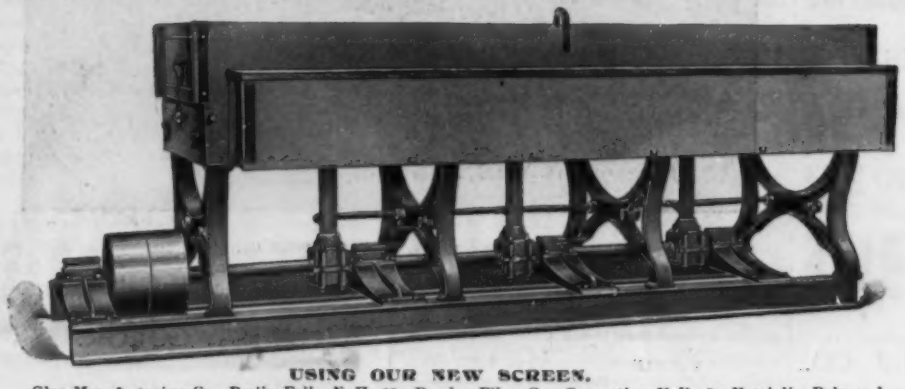

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CHAPTER II.—**Fibres.** Cellulose in its relations to the plant; the vegetable cell; the cell wall; changes which occur in the cell wall; lignin or incrusting matter; its chemical properties; characteristic markings of the cell wall in different fibres; characteristic cells other than fibres in different pulps. Classification of fibres: 1. Seed hairs; cotton, chemical and physical character of fibre, dimensions, analyses. 2. Bast fibres, as linen, jute, hemp, manilla, rhea, ramie, agave, sisal, adansonia, &c.; occurrence in plant, separation of filaments; character, size, distinguishing features of filaments and ultimate fibres, analyses and chemical properties. 3. Fibres and other cells from whole stems and leaves, as straw, esparto, bamboo; measurements and characteristics of fibres, yields, analyses; characteristic cells found with fibres. 4. Wood fibres; growth of wood; cambium layer; spring and autumn wood; sap and heart wood; resins; bark and knots; analyses of woods; specific gravities; ash; fuel values; occurrence and character of all woods used for pulp making.

CHAPTER III.—**Processes for Isolating Cellulose.** Rag boiling; special treatments for various fibres, as jute, straw, esparto; review of miscellaneous processes for treating wood; the water process, aqua regia, &c.; the soda process, history; preparation of liquors, boiling, washing, recovery, sources of loss; analyses of chemicals and liquors; the sulphite process, history; general principles; the different systems; liquor apparatus; preparation and analyses of liquors; digesters; linings; boiling; subsequent treatment of pulp; waste liquors; recovery. The sulphide and sulphate processes.

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CHAPTER VI.—**Coloring.** Mineral colors; vegetable and animal colors; aniline colors; chemical properties; effect of alum and traces of bleach or alkali in different colors; distinguishing tests; effect of different waters.

CHAPTER VII.—**Water and Water Supply.** Character and analyses of different waters; ground waters; surface waters; river water; artesian well water; hard and soft waters; boiler scale; effect of waters on size and colors; various systems of filtration; use of alum; softening water; self purification of streams; natural filtration; effect of storage; vegetation in ponds; crenothrix; consumption of bleach by waters.

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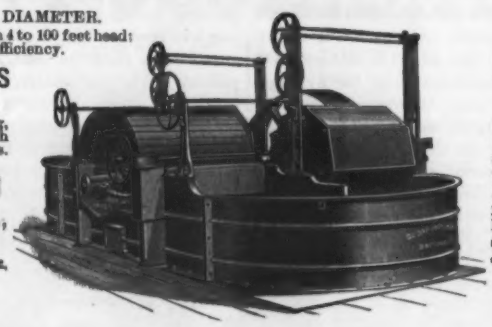

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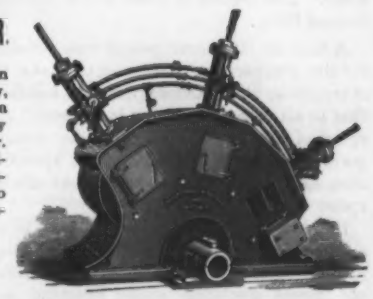

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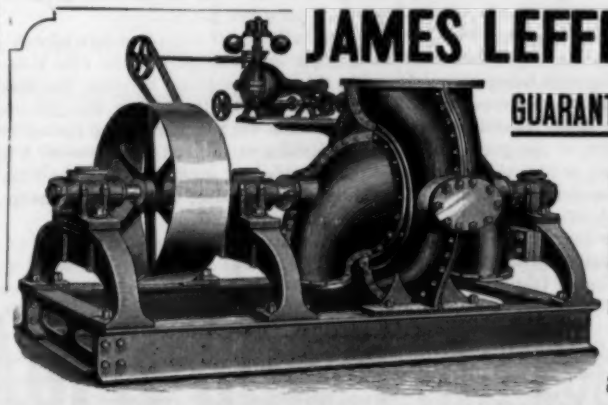

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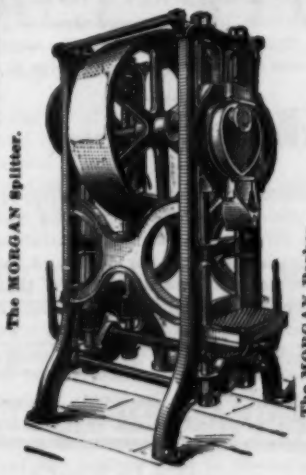

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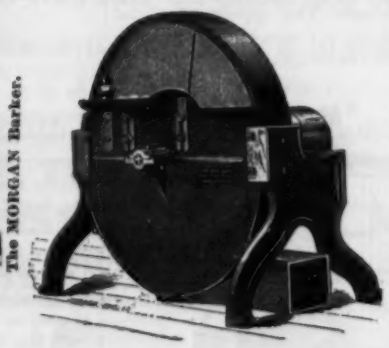

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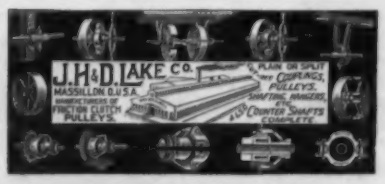

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PIQUA, Ohio, Dec. 16, 1893.

The J. D. & H. LAKE CO., Massillon, Ohio:

Gentlemen—Replying to your favor of 15th inst., we take pleasure in saying the two Friction Clutch Pulleys and the Cut-off Coupling which we bought of you over a year ago are giving us excellent satisfaction. The 36 inch Friction Clutch drives our freight elevator, 2,500 lbs. capacity, with perfect ease, while the Cut-off operates two 4 horse power machines nicely. We are well pleased with the Pulleys and shall have more of them shortly.

Very truly yours,
THE CORRESPONDENT SHOW PRINTING CO.,
J. B. HEMSTEGER,
Dictated. L. Pres. and Gen. Mgr.

HORNELLSVILLE, N. Y., Dec. 11, 1893.

J. H. & D. LAKE CO., Massillon, Ohio:

Gentlemen—The uneven, jerky power required to operate one of our wire machines has severely tested the power and durability of your Clutch Pulleys, and after using quite a number of them for two years we can simply say "Perfection."

Yours truly,
TRUSS AND CABLE FENCE CO.
Dictated by GEO. P. RISHEL.

TORRINGTON, Conn., Dec. 13, 1893.

J. H. & D. LAKE CO., Massillon, Ohio:

Gentlemen—In reply to yours of 12th, we would say we have been using your Clutches for the past two years and we find them very satisfactory. They have never caused us the least trouble.

Yours truly,
THE HENDEY MACHINE CO.,
H. J. HENDEY, Pres.

CLEVELAND, Ohio, Dec. 19, 1893.

Messrs. J. H. & D. LAKE, Massillon, Ohio:

Gentlemen—Your favor of the 18th inst. is at hand. We have none of your Clutches in operation, but we bought them and sold them to other parties and have had no report of them, so suppose that they have always been satisfactory.

Very truly yours,
THE BROWN HOISTING AND CONVEYING MACHINE CO.,
E. T. SCOVILL, Sec'y.

LOUISVILLE, Ky., Dec. 13, 1893.

J. H. & D. LAKE CO., Massillon, Ohio:

Gentlemen—It will no doubt be of interest to you to learn that your Patent Screw Lever and also your Multiband Friction Clutch Pulleys and Cut-off Couplings which we have placed are giving entire satisfaction. Out of the twenty-eight or thirty which we already have in use in different factories, we have yet to record one instance wherein there has been any complaint made.

We have in the last ten years used and placed one or more of nearly all makes of Friction Clutches, and we are satisfied that these are the best Friction Clutches now in existence.

Yours very truly,
W. E. CALDWELL CO.,
MILLER.

WILMINGTON, Del., Dec. 21, 1893.

J. H. & D. LAKE CO., Massillon, Ohio:

Gentlemen—Your letter of December 18, 1893, concerning the merits of your Patent Screw Lever and Multiband Friction Clutch Pulleys is at hand.

We have used them for some time and are well satisfied with the work which they perform. They have given no trouble whatever and we can cordially recommend them to anyone needing Friction Clutch Pulleys. Very truly yours,

THE WILMINGTON DENTAL MFG. CO.,
Per S. J. WILLEY, Vice-Pres.

NEW YORK, Dec. 19, 1893.

J. H. & D. LAKE CO., Massillon, Ohio:

Gentlemen—Your inquiry of the 15th inst. relative to Clutch at hand. We have had one of your Screw Lever Clutches in operation for about one year, transmitting from 40 to 60 H. P. under conditions that are not favorable to the Clutch. Its operation has been satisfactory, in proof of which we have recently sent you an order for another.

Very truly yours,
H. W. JOHNS MFG. CO.,
Per STONE.

CINCINNATI, Ohio, Dec. 16, 1893.

J. H. & D. LAKE CO., Massillon, Ohio:

Dear Sirs—We take great pleasure in saying that we have placed in the last two years not less than twenty-five of your Screw Lever Friction Clutch Pulleys, Clutch Couplings and Clutches for sprocket and gear wheels of various sizes, and not in one single instance have they given us the least trouble or annoyance.

We have used any number of different Friction Clutches in the last ten years, and had learned to regard hub friction as something that would answer for light power, but where heavy power was required they were found wanting. However, since taking hold of your Clutches we have not used any other unless compelled to by specifications made by others. In some cases we obtained consent to apply the Lake, but only under specific guarantees, and in not a single case have we had occasion to replace one or had even a complaint. The adjustment is so simple that the most inexperienced are capable of making it without any danger of throwing them out of balance or gripping unequally, a difficulty so frequently encountered with others. Please hurry forward the orders you now have. Yours truly,

THE FRANCIS FRITSCH MFG. CO.,
JOHN G. FRITSCH, Pres.

CINCINNATI, Ohio, Dec. 15, 1893.

J. H. & D. LAKE CO., Massillon, Ohio:

Gentlemen—We have had several of your Clutches in operation for about a year. We consider them excellent; we have had no trouble at all with them and find them easily adjusted. Wishing you every success, we are,

Very respectfully,
THE LODGE & SHIPLEY MACHINE TOOL CO.,
MURRAY SHIPLEY, Jr., Vice-Pres. and Sec'y.

PHILADELPHIA, Dec. 26, 1893.

J. H. & D. LAKE CO., Massillon, Ohio:

Gentlemen—We purchased from you last March (1893) four of your 12 inch Patent Screw Lever and Multiband Friction Clutch Pulleys, for a very particular and severe place, as they were to run at a very high rate of speed. We were somewhat skeptical at first as to what they would do on so high a speed, as they were to reverse constantly. We are thoroughly satisfied with them and they have been in constant use ever since and have greatly surpassed our expectations, and would be pleased to recommend them to anyone whom you may refer to us.

Yours truly,
HUNTER MFG. CO.,
J. E. LANGDON, Manager.

Cost of Steam Power.

In a lecture delivered in Sibley College by Charles S. Emery, Ph. D., the cost of steam power was treated most exhaustively. The lecture is given below in a condensed form:

A unit of 500 horse power was selected for the comparison. In order to make the comparison at the same speed it is assumed that in all cases the power is delivered at a speed of 250 and 350 revolutions per minute, corresponding to the jack shaft speed of slow engines, and the actual speed of high speed engines.

It is attempted in this presentation to examine all the principal causes which affect the cost of steam power in engines of different types operated under practical conditions, but the substantial equalization of the cost of the power developed with engines of different types and different degrees of economy, when expenses independent of the coal consumed are considered, will necessarily form a prominent feature of the discussion, for the reason that they have frequently been neglected in such calculations and inadequately discussed in others, so that their very important bearing on the results is not generally understood. Such additional expenses are fairly constant, independent of the type of engine, and without considering interest or dividends they will in some cases equal the cost of the coal.

It will be seen therefore in comparing two engines, of which both are good, so that one, for instance, will effect a saving of coal compared to the other of, say, 12½ per cent., making the relative cost of fuel as 8 to 7, that if additional costs equal to the former be added to both the relative economies will be as 16 to 15, and the saving reduced to 6¼ per cent. simply by summation of costs. If then we assume that all expenditures should pay 10 per cent interest or dividends on capital invested, and 10 per cent. of the difference in the first cost of the engines equals an amount which represents a saving of 6¼ per cent. of fuel, then the cost to the owner of the steam plant will be exactly the same in the two cases, since in the one case he will pay an additional interest, or loss of dividends on the capital invested, the same sum as he will pay for additional fuel if he uses the cheaper engine.

The original cost of the plant is evidently of great importance, where on one hand money is dear, or on the other coal is cheap or the work irregular. When the interest or dividend charges and others akin thereto are duly considered it will readily be seen that the number of hours an engine operates in a year has a very important influence on the question of first cost, as such charges will be exactly the same whether the plant be operated one hour or twenty-four hours a day, and likewise the interest will be the same whether coal is $1 or $10 a ton. The saving in the total cost of coal consumed, either for short hours of running or low cost of coal, will evidently be such as not to warrant the adoption of high priced machinery. Other conditions also affect the problem. For instance, with economical engines small boilers are required, so that saving in the cost of boilers partly compensates for the highest cost of the economical engines.

Steam engines at the present time may be divided into two general classes, distinguished as high speed and low speed engines. The high speed engines are best distinguished by the fact that they are of comparatively short stroke, and develop approximately in the same piston speed as long stroke engines by an increased number of revolutions. There are also simple compound and triple compound engines, of both high and low speed types, either horizontal or vertical. Most low speed engines are of the automatic, cut-off type, and high speed engines are usually of the fly wheel or governor type, some of which perhaps may possess advantages that others do not possess. The engines may also be operated with the steam escaping into the atmosphere or to a condenser, and in the latter case an air pump may or may not be used. The first class may be referred to as non-condensing engines, and the term condensing engines is the general one applied to those in which the steam is condensed and a vacuum formed.

Referring to the table, the types of engines given are as high and low speed, simple non-condensing and condensing engines, compound high and low speed, condensing and non-condensing, and triple compound, high and low speed condensing and non-condensing. Line 10 is a low speed triple compound condensing engine, designed to secure economy in construction rather than in fuel, and line 11 is a similar engine designed for fuel economy alone, while line 12 is an engine assumed to be operated with boilers of unusual economy, requiring more labor, and it is believed to represent unusually good practice. The friction of the high speed engines is assumed at 8 per cent., and of the low speed engines 10 per cent., making the indicated horse power 542 for the high speed and 558 for the low speed engines, or 500 net horse power. The pressure assumed is 100 gauge pressure in the lowest case to 150 to 170 pounds for the triple engines. The water per horse power per hour is determined from a careful consideration of the average condition of practice. It is possible that in case of very favorable conditions the figure on the line below, or the average between them, may represent some special case. Engines in cotton mill work, with a reasonably steady load, will necessarily give better results than if the load was not steady.

Type of Engine.	Water per Horse Power per Hour.	Cost of Construction. Cost of Engines ready for operation.	Cost of Boilers ready for operation.	Buildings and Chimneys.	Total Cost of Construction, with inspection and interest added.	Cost of Operation. Cost of Coal per Horse Power per Year of 308 ten-hour days, at $4 long ton.	Cost per Horse Power per Year operating and interest except Coal.	Total Cost per net Horse Power per Year of 308 ten-hour days, Coal $4 per ton.	Total Cost 308 Days, $3 per ton.	Total Cost 308 Days, $4 per ton.
1. Simple H. S. non-con.	33	$17.50	$26.22	$15.18	$68.91	$25.46	$17.06	$42.54	$36.07	$39.81
2. Simple L. S. non-con.	29	25.00	23.63	14.22	68.19	22.96	16.98	39.94	34.20	38.46
3. Compound H. S. non-con.	26	21.00	20.08	13.13	59.47	20.66	15.81	35.87	30.86	35.84
4. Triple com. H. S. non-con.	24	26.00	21.70	12.55	65.37	18.52	16.50	35.02	30.39	35.76
5. Simple H. S. con.	22	21.00	17.47	11.95	54.71	16.97	14.76	31.73	27.49	33.25
6. Simple L. S. con.	20	27.00	16.32	11.53	59.51	15.83	14.90	30.73	26.77	32.85
7. Compound H. S. con.	20	24.50	15.88	11.36	56.14	15.43	14.79	30.22	26.36	32.51
8. Compound L. S. con.	18	30.00	14.70	10.92	60.35	14.25	14.84	29.09	25.53	31.97
9. Triple com. H. S. con.	17	29.00	15.35	10.49	59.50	13.12	15.01	28.13	24.85	31.57
10. Triple com. L. S. con.	16	37.50	14.85	10.32	68.00	12.66	15.77	28.43	25.27	32.10
11. Triple com. L. S. con.	15	45.00	13.90	8.35	72.97	11.87	16.41	28.28	25.32	32.35
12. Do. for maximum results.	14	45.00	12.95	8.15	71.72	9.92	16.75	26.67	24.19	31.71

In estimating, the cost of the engines constructed and ready for operation may also vary under different conditions, but a very exhaustive study of the subject was given, and the results confirmed by the conclusions of others and independent engineers. It is possible in a variety of ways, as by using the smaller engines and increasing speeds, to reduce this item, but it would be beyond the customary limits. To the cost of the low speed engine is added the main belt and jack shaft, to bring it on the same comparison as the high speed engines.

The column for boilers includes their erection and connection ready for operation on a basis of $22 per commercial horse power for steam pressure under 125 pounds, and $25 for higher steam pressure. The commercial horse power is based upon an evaporation of 30 pounds of water per hour, so engine A would require 596 commercial horse power, and engine L but 259 commercial horse power, because less water is required to produce this horse power, and in selecting the type of boiler it was determined to make it high enough to include the better class of safety boilers.

Envelope Gumming Mechanism.

A new arrangement for envelope machines consists in combining with the usual gum box, rolls and back flap gumming and "pick-up" fingers of an envelope machine two gum distributing rolls, both mounted on a pivoted frame, having circular, reciprocating movements imparted thereto by suitable operating mechanism connected therewith, whereby each of the gum distributing rolls may be carried forward and back, under and in contact with its respective finger, so as to twice gum the bottom surface thereof between each operation of supplying the same with fresh gum from the gum box roll.

The various parts are constructed and arranged to bring one of the distributing rolls on the frame centrally between the gum box rolls and fingers, when the other distributing roll is in contact with one of the gum box rolls, and the frame is operated at each circular movement one-half the distance between the gum box rolls, being in practice operated continuously with reciprocating movements from one side to the other, and thus bringing the distributing rolls alternately against first one and then the other of the gum box rolls to supply the same with fresh gum preparatory to passing under the "pick-up" fingers, the gum box roll and distributing roll upon one side supplying the gum to one "pick-up" finger, and those upon the other side gumming the other finger. Being thus arranged and operated, that is, each distributing roll carried from one of the gum box rolls to the centre and back, it is obvious that each distributing roll passes under and gums the "pick-up" finger upon the same side of the centre as the roll twice after receiving its new supply of gum from the gum box roll.

The frame on which the distributing rolls are mounted is moved with quick, reciprocating movements, and therefore when the rolls come in contact with the bottoms of the fingers, and pass by the same, sufficient circular momentum is imported thereto by the frictional contact to turn the rolls a partial revolution in their bearings. Consequently when the distributing rolls return from the centre, portions thereof not before touched by the fingers are brought in contact therewith, and are gummed as perfectly as by their first contact after leaving the gum box rolls. The advantages of thus constructing and arranging the back flap gumming and "pick-up" mechanism will at once be apparent.

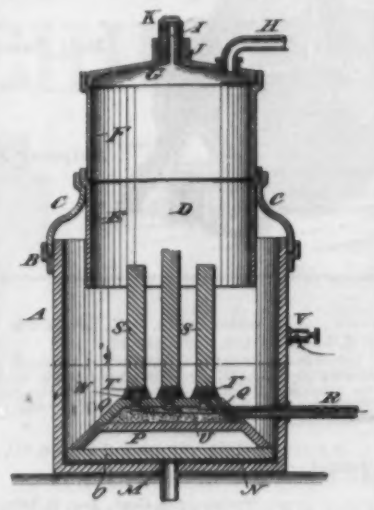
By employing two gum distributing rolls, one for each finger, and arranging the same to come nearly parallel to the fingers when passing under the same, so that they will come in contact lengthwise therewith, very small rolls may be used, as only a small portion of the circumferential surface is required to cover the width of the bottom of the fingers in passing under the same. Therefore the length of the vertical movements of the fingers may be correspondingly shortened and this portion of the envelope machine built in more compact form than ordinarily, which result is also facilitated by the decreased length of movements of the distributing rolls in gumming the fingers.

Other advantages of this construction and arrangement are that large envelopes may be gummed without materially increasing the diametrical size of the distributing rolls, and the length of strokes of both the fingers and distributing rolls being reduced to a minimum, admits of an economical construction and the least possible waste of time in the operation of the parts; consequently an increased production may be obtained by a machine thus made, without increasing the speed of the distributing rolls, owing to the saving in the length of movements above noted. Furthermore, one of the most objectionable features of the usual long stroke distributing rolls, viz., throwing the gum about by the rapid movements required, is practically obviated.

Electrolytic Apparatus.

An illustration is given of an improved form of apparatus for electrolytically producing caustic soda and chlorine.

A is the containing vessel, which is of iron. On the outside of the vessel A and near its upper edge is a flanged collar, B, which serves as a support for the brackets C. The brackets C support the bell D. This bell is made of earthenware, and may be constructed in sections, E and F, jointed together, as shown. The upper end of the bell is closed by a dome, G, with which communicates the outlet pipe H for the



Electrolytic Apparatus.

chlorine. With the outlet pipe H is connected any suitable form of pump or exhauster; also in the dome H is the tubular opening I, surrounded by the circular flange J. In the annular space formed between the tubular opening I and the flange J is disposed the lower edge of the small bell or cylinder K, which serves as a cover for the opening I. The space inside the flange J is filled with water so as to seal the joint between the cylinder K and the pump G. The object of the tubular opening I is to allow brine to be conveniently introduced into the apparatus, for which purpose the cylinder or cover K is of course removed.

In the bottom of the vessel A is an opening, M, communicating with an outlet pipe, Above this opening and covering the bottom of the cell, is a layer of wire netting or gauze, N, above which rests a steel plate, O. On this steel plate is placed a support, P, in the shape of the frustum of a cone and made of earthenware. Above the support P is a flanged disk, Q, the flanges resting upon the upper surface of the earthenware support P. The flanged disk Q is also of earthenware. It has an aperture in its flange, in which enters an earthenware pipe, R, which pipe extends through the wall of vessel A. The entire space between the flanged disk Q and the support P, and also the interior of the pipe R, is filled with an insulating material, preferably a mixture of paraffine and gutta percha. In the disk Q are a number of openings, above each of which is vertically disposed a bar, S, of gas carbon. The bars S are supported on the disk Q by means of pins, T, also of carbon, which are inserted in the bottom of the carbon bars S and also in the apertures in the disk Q. The pins T are of carbon, thoroughly impregnated with paraffine. The joints between the carbon bars and the disk Q are inclosed in envelopes, W, of insulating material, such as paraffine or paraffine and gutta percha.

The pins T are all connected by a wire, U, in multiple arc relation, and the wire U extends through the space between the disk Q and the support P, and out through the tube R. The carbon bars S are therefore at the anodes of the cell. The vessel A is at the cathode and is connected to the other terminal of the source of current by means of the binding post V.

The operation of the apparatus is as follows: The vessel A being filled with an aqueous solution of sodium chloride above the level of the lower edge of the bell D, current is established and the exhauster or pump communicating with the pipe H is set in operation. The liquid is then electrolyzed, chlorine being produced at the anodes, which is drawn out of the liquid in gaseous form through pipe H by means of the pump or exhauster. The caustic soda, also produced by the electrolysis, forms at the inner or cathode surface of the vessel A, and descends, by its own gravity, along the sides thereof, filters through the wire gauze N, and finally escapes at the pipe M.

Wood Fibre Blankets.

Wood fibre treated by the sulphite or chemical process is peculiarly fitted, by reason of its softness, to be used in a fabric designed as a substitute for cloth and requiring the softness and flexibility of that fabric. The objections found to exist in fabrics thus made out of this kind of fibre are found to be these: That the sheets made of such fibre will, when rubbed to reduce the stiffness of the sheets, abrade upon the surface and show a fibrous appearance and lose in large measure the strength as well as smooth or solid surface. If, further, the sheet of fibre is rendered flexible by pounding or crushing in a dry condition the wood fibres will break, and the fabric is thus weakened and its appearance also impaired. If it is made flexible by passing between knobbed or fluted rollers, the fabric is stretched and pulled in places, and thus the fibres are broken and the strength and appearance of the material are impaired.

If sheets of wood fibre made of proper thickness to suit the purpose of blankets, linings and the like, for which such sheets have been heretofore designed or used, are subjected to pounding, in a dampened condition, the softening may be effected without rupture of the fibre or abrasion of the surface. These sheets are moistened with a thin solution of gelatine using preferably 1 part of the gelatine to 20 parts of water. When the sheets have been evenly and thoroughly moistened with this solution, they are subjected in a crumpled condition and with proper changes of position to pounding by any convenient form of pounder, until the sheets are thoroughly softened. The sheets are then smoothed by passing them between rollers and drying them. The smoothing and drying may be effected at the same time by using heated rollers or surfaces. When so made the sheets retain the unbroken and unabraded surface, and are flexible and soft, resembling chamois or dressed buckskin. The wood fibres, which if dry would break and disintegrate under the pounding, readily bend when moist and retain their integrity. The small percentage of gelatine also materially serves to promote this action.

Parchmentized Paper and Board.

According to a new process leatheroid or parchmentized paper and paper board is made by passing paper through successive baths of parchmentizing liquid of gradually diminishing strength, according to the kind or quality of paper treated, then placing it in a bath of water to remove the chemicals, and then while still wet folding or placing a plurality of layers of the paper upon each other and uniting them by subjecting them to pressure between flat hot plates.

It is claimed that a very much tougher and harder slab or board can be produced by removing the chemicals or neutralizing their effects in the thin sheet, and then while still wet placing a plurality of such sheets in a pile, one upon the other, by folding or otherwise, and subjecting them to pressure between heated flat plates, and also that a great advantage is obtained by placing the pile or plurality of layers between dry sheets of cloth or felt, which absorb the moisture from the parchmentized sheets and thus very materially assist in the proper compacting and uniting of the sheets in a single homogeneous slab or board.

The foregoing process is employed where thin papers are to be parchmentized, and where these are to be united to form a board. The process is reversed where a thick paper or board is to be subjected to the action of the liquid. In this case the paper or board is first run through a bath of acid too dilute to properly parchmentize it, and therefore the compound will be absorbed through the entire thickness of the paper. If it is then put in a bath sufficiently strong to parchmentize it the strong compound will follow the weaker, and the whole sheet will be properly acted upon; and it has been found that there is advantage obtained in treating any sheet, even if of the ordinary thickness, with several baths, and therefore the paper is first run through a weak bath, and then through one or more of increasing strength, the last being the strongest bath used, and after that it can be wound directly upon the forming roll if it is desired to form a board of increased thickness.

MERCHANT & CO.'S
Graduated Metal Tile,
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COPPER, STEEL, TIN
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Saves 50 per cent. in Material, and more in Labor of Laying.
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AUGUSTUS W. PETERS, Chairman of Consolidated Stock Exchange, New York.
GEORGE W. MILLAR, of George W. Millar & Co., Paper Manufacturers and Dealers, 64 Duane St., New York.
PETER B. WRIGHT, Manager of Hotel New Netherland, Fifth Avenue, New York.
HENRY E. PRATT, President of American Copying Paper Co., Mills at Windsor Locks, Conn.
THOMAS S. SAFFORD, Treasurer of West Jersey Paper Manufacturing Co., Mills at Camden, N. J.
GEORGE H. DOUGLASS, late Supt. Union White Lead Co., Brooklyn, N. Y.

"WHITE'S" NEW PATENT OSCILLATING SCREEN

PATENTED IN AMERICA. PATENT No. 498,041.

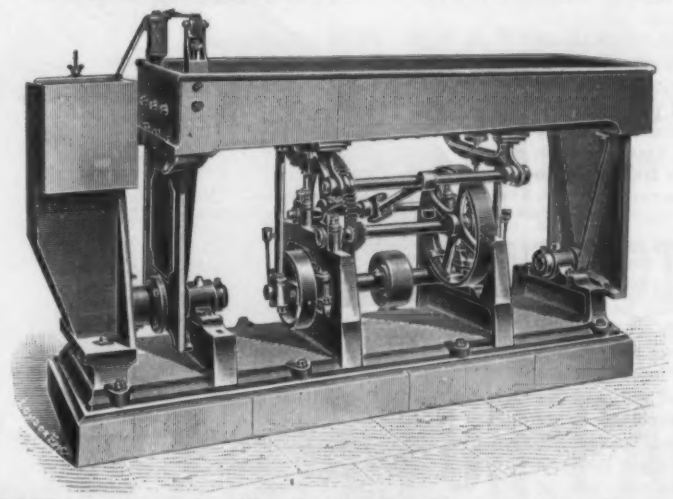
LIST OF USERS.

Messrs. Annandale & Son, Ltd., . . . Polton, Midlothian
" The Bally Paper Mills, ... Calcutta
" Caldwell & Co., ... Inverkeithing, Fife
" The Carrongrove Paper Co., Ltd., . . . Denny
" R. & J. Couper, ... Millholm, Glasgow
" The Culter Mills Paper Co., Ltd., . . . Aberdeen
" Dixon, Horsburgh & Co., Ltd., . . Wells, Somerset
" The Ford Paper Works, Ltd., . . . Sunderland
" The Guardbridge Paper Co., Ltd., Guardbridge, Fife
" Inveresk Paper Co., . . Musselburgh, Midlothian
" Potter & Co., ... Darwen, Lancashire
" James Stewart & Co., . . . Westfield, Bathgate
" The St. Neots Paper Mill Co., Ltd., . . St. Neots
" W. A. Sommerville & Co., . . . Kevock, Lasswade
" Thomas & Green, Ltd., ... Wooburn, Berks
" W. Tod, Jr., & Co., . . . Springfield, Midlothian
" W. Tod & Son, ... , Lasswade, Midlothian
" Jos. Town & Sons, ... Keighley, Yorkshire
" James Wrigley & Son, Ltd., . . . Bury, Lancashire

TESTIMONIALS.

Messrs. Annandale & Son, Ltd., Polton Paper Works, Midlothian, write as follows:

"We may say that we consider the Oscillating Strainer embraces all the advantages of the revolvers, with none of its disadvantages, and all the advantages of the flat bottomed, with none of its disadvantages, while it also holds qualifications essentially its own. As we had your Strainer taking through 300 lbs. per hour of **pure rag pulp** of ordinary length through 3¼ cut, we think it says sufficient for its power."



WE have pleasure in calling the attention of American Paper Manufacturers to the new design of Screen as illustrated above. This Screen has now been thoroughly tested on all classes of pulp, and we confidently recommend it as the best and most efficient Screen at present in the market.

A slow, oscillating motion, about twelve oscillations per minute, is imparted to the vat by a crank, and the diaphragm is driven from a crankshaft which runs at about 550 revolutions per minute, and the amount of stroke is regulated by adjustable pins.

The entire straining surface is constantly in motion, the stuff washes across the plates at each oscillation, thus effectually preventing the pulp from settling on the plates. The refused fibres are carried into channels at each side of vat and discharged by a simple arrangement of automatic plunger valves.

Our standard make of Screen has a straining surface of 7 ft. × 2 ft., and at a mill here making high class printings a Screen of this size, with plates having slits 9-1000 wide, is passing 1,000 lbs. of dry paper per hour. In mills using pure rag stuffs the Screen under above conditions is regularly passing over 600 lbs. of dry paper per hour.

All impurities are removed and a great saving is effected in the consequent cleanliness of the paper. The Screen is absolutely noiseless, the power required is nominal, and the wear and tear is reduced to a minimum.

TESTIMONIALS.

Messrs. R. & J. Couper, Millholm Paper Mills, Glasgow, write:

"We have now had your Oscillating Strainers making all qualities and weights of **tub sized rag papers**, and are well satified with the results. We consider them a decided improvement over both flat and revolving strainers of the latest modern paper making practice. They are in our opinion giving a cleaner result all round, and effecting at the same time a considerable saving in fibre, which, with proper machine house supervision, ought to recoup original outlay in a comparatively short period."

Messrs. The Culter Mills Paper Co., Ltd., Aberdeen, write:

"We are pleased to tell you that your Patent Flat Oscillating Strainers, which are fitted to one of our paper machines, continue to give us every satisfaction. In our opinion this Strainer contains many improvements, passes a large quantity for the plate area, and effectually keeps back all impurities. We are able to pass through our Strainer of 7 ft. × 2 ft. **fully 500 lbs. per hour.**"

Messrs. W. A. Sommerville & Co., Kevock Paper Mills, Lasswade, write:

"Your Oscillating Strainer has been working on our Presse Pâte for more than a year, and is passing over 50 tons of esparto grass per week. The cut of the plate is 4½ (Watson's gauge). We have never had the slightest trouble with it since we started, nor have we spent a penny on its upkeep. The two additional Oscillating Strainers lately supplied to replace the revolvers on our paper making machine are also giving most satisfactory results, and we consider your Strainer is far and **away the most efficient Strainer we have ever worked.** By the oscillating motion the plates are kept quite free from dirt and stuff, and on this account the power to drive is reduced to a minimum."

Messrs James Stewart & Co., Westfield Paper Mills, Bathgate, write:

"The Oscillating Strainer which you lately supplied us with is giving every satisfaction, and our manager reports that 96 cwt. bleached esparto can with ease be passed through in twelve hours. We shall have great pleasure in recommending the Strainer to anyone who may think of going in for a similar machine."

Messrs. Wm. Tod, Jr., & Co., Springfield Paper Mills, Polton, write:

"We are very pleased with the Oscillating Strainer you fitted to our Presse Pâte in April last (seven months ago). It has run constantly since, passing through plates cut No. 5. Watson's gauge, about **35 tons of paper weekly**, and has given us no trouble whatever, and much cleaner stuff than before."

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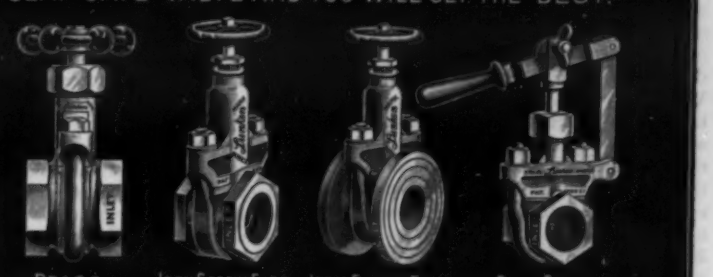

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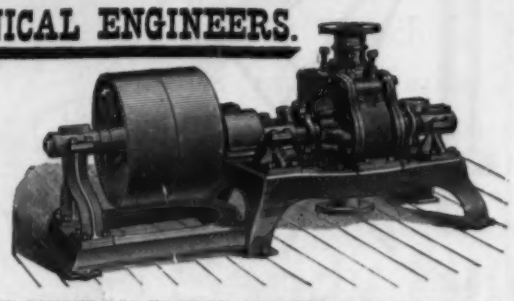

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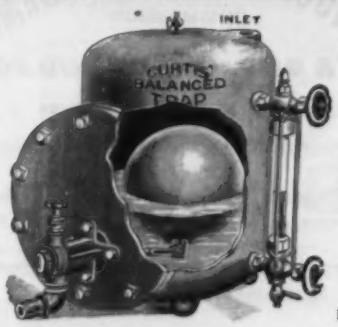

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Combines More Superior Features than any other Trap in the market.

One of them is that the SEAT and VALVE may be removed without breaking a joint, starting a gasket, or removing a pipe.

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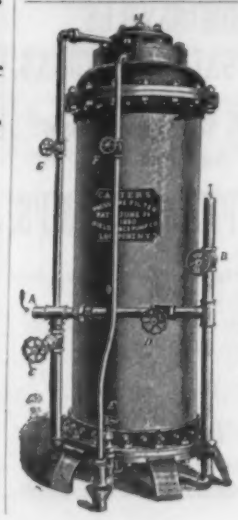

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CORRESPONDENCE SOLICITED.

Address, **FIELD FORCE PUMP CO.,**

LOCKPORT, N. Y.

Small Sizes of Anthracite Coal for Steam Raising.

Three years ago I was appointed a member of a commission to investigate the waste of anthracite coal, and the question of the utilization of small sizes was studied with great care by us. The subject was treated generally in a report made to the State of Pennsylvania on May 30, 1893, and also in a paper which I read before the American Institute of Mining Engineers at their August meeting, upon "An Automatic Stoker."

When I first remember the anthracite coal business, all the sizes below stove coal were considered of little or no value. Chestnut coal was used to a greater or less extent about the collieries for making steam, but much of it was thrown away. It gradually became a domestic fuel, and pea coal took its place for generating steam. This size is gradually coming into use for domestic purposes, and buckwheat coal is taking its place for steam. Two smaller sizes, known as rice and barley, are already being used to a large extent for the same purpose. The value or cost of these coals decreases very rapidly with the size. I append herewith a table showing the size and approximate cost at mines, and the sizes of mesh over which or through which they are made:

Size.	Made Through.	Made Over.	Approximate Prices at Mines.
	Inch.	Inch.	
Chestnut, . .	1½	¾	$2.75
Pea, ...	¾	⅝	1.25
Buckwheat, . .	⅝	⅜	.75
Rice, ...	⅜	⅛	.25
Barley, . . .	⅛	1/12	.10

The above meshes are all round punched, and are the standards adopted by Coxe Brothers & Co. at the Cross Creek Collieries.

Another important point to be noted is, that the cost of transportation of the small sizes is less than that of the large. From the mines to tide pea coal is charged 30 cents, and buckwheat, rice and barley 50 cents less per ton than the domestic sizes.

One great difficulty encountered in the introduction of these smaller sizes was the fact that, as they were of comparatively little value, but little attention was paid to their preparation, and parties who began to use them did not erect furnaces specially constructed for the purpose, but generally burned them in their old plants, sometimes changing the construction of their grate bars a little.

While the sizes of the domestic coals made by the different companies are practically the same, there has been a great difference in that of the small coals and in the amount of impurities contained in them. Formerly a large amount of culm was employed where it could be obtained cheaply, but its use is diminishing, for the following reasons: What was formerly known as culm contained the buckwheat, rice, barley and in some cases the pea coal. Now, however, the pea, buckwheat, rice and in some cases the barley, are taken out, and the dust that remains, which forms what is now called culm, although it may be still used by mixing with bituminous coal or in a special furnace in which it is burned as dust after being thoroughly pulverized, or by making briquettes or compressed fuel, is at present of no value alone and in its natural state for generating steam.

As is well known to all those who burn anthracite, sizing is of great importance. The coal burns only on the surface, and therefore, if the size is not uniform, the smaller particles clog the passages between the larger, and thereby prevent a sufficient quantity of air from passing through the furnace. Some of those who have attempted to use buckwheat, rice and barley have given them up, because of the great want of uniformity in the results obtained. The difficulty may be due to one of two causes, or both. First, to bad sizing, and second, to the presence of a large quantity of impurities. Experiments which we have made have proved that the percentage of carbon when small anthracites are burned under proper conditions, and not the size, is what determines the amount of water evaporated per pound of coal; but the amount of water evaporated per square foot of heating surface decreases with the size of coal.

Cheap steam is the cornerstone of a large number of our most important industries, and nothing is more important in obtaining it than cheap fuel. The enormous quantity of these small anthracites which we are now forced to make in preparing the larger sizes promises to furnish to the Northeastern and Eastern States a clean and economical fuel, which lends itself to mechanical handling far better than any other known combustible. The only thing that prevents every ton that can be produced from being used is the want of knowledge of its peculiarities and of proper methods of determining its value.

In many parts of Europe coal is sold based upon the percentage of ash; that is to say, coal is guaranteed to contain not over a certain percentage of ash, and the price per ton is reduced a certain number of cents per ton for each additional unit of ash, and in some cases the deduction in the price increases a in geometrical and not an arithmetical progression, as the percentage of ash increases. It seems to me that it is of the greatest importance to the producer and user of the smaller anthracites that they should be sold on this basis, with an additional guaranty on the part of the producer as to the size. It is not simply a question of the absolute size of these smaller coals, but also one of the relative size of the different pieces which make up the aggregate: that is to say, each size should be as nearly uniform as possible. If we consider the coal to be made up of three sizes, Nos. 1, 2 and 3, No. 1 being the largest size, a ton of coal composed entirely of No. 2 would be much more valuable than one composed of the three, although the quantity of No. 1 in it might be greater than the quantity of No. 3. The smaller pieces tend to stop up the interstices between the larger lumps and check the draft.

It is one of the problems in burning small coal to force the air through a grate that will not let the coal drop, and through the body of coal, which is more or less compact. Of course it is not practically possible to have the size of the coal absolutely uniform, but the producer should at least guarantee that a certain percentage of the coal sold as rice should be of such size that it would pass through a mesh of a specified diameter, and over a mesh of another specified diameter. In other words, with the present light I have upon the subject, if I were in charge of a large steam plant burning, say, 100,000 tons of rice coal per year, I would try to make a contract which would require the coal to contain not over a certain percentage of water and not less than a certain percentage of carbon, or, what is practically the same thing for anthracite, not over a certain percentage of ash, and that a certain percentage of the average daily sample of the coal would pass through a mesh of a certain size and over a mesh of another size, and that the coal should not contain more than a certain percentage of dust—dust being what would pass through a mesh of, say, one-sixteenth of an inch in diameter.—*Eckley B. Coxe, in Cassier's Magazine.*

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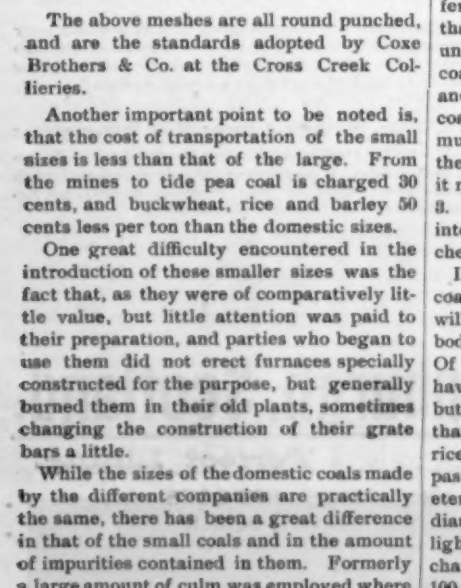

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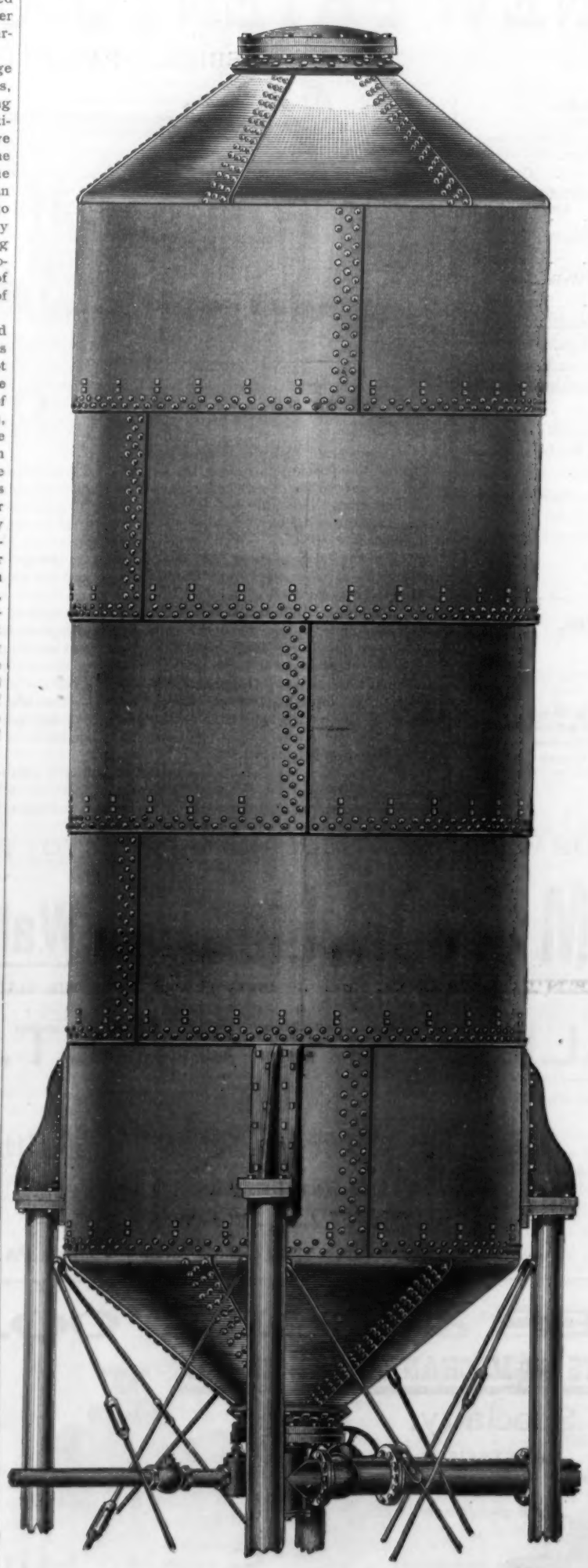

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And the way some people run it, it is. We don't claim that a boy can operate our Digesters.

But we do claim that a man may fail with others and succeed with ours.

If you fail with other digesters, the blame rests on the management.

If you succeed with ours, the management gets the credit.

We don't claim that this is always fair,

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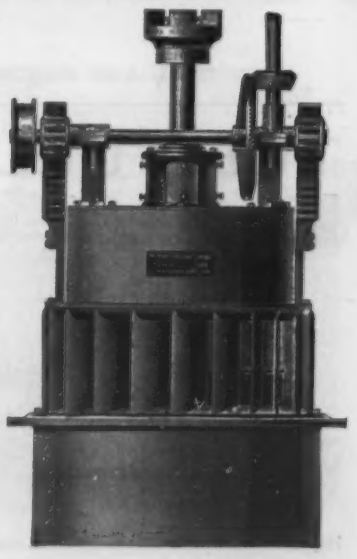

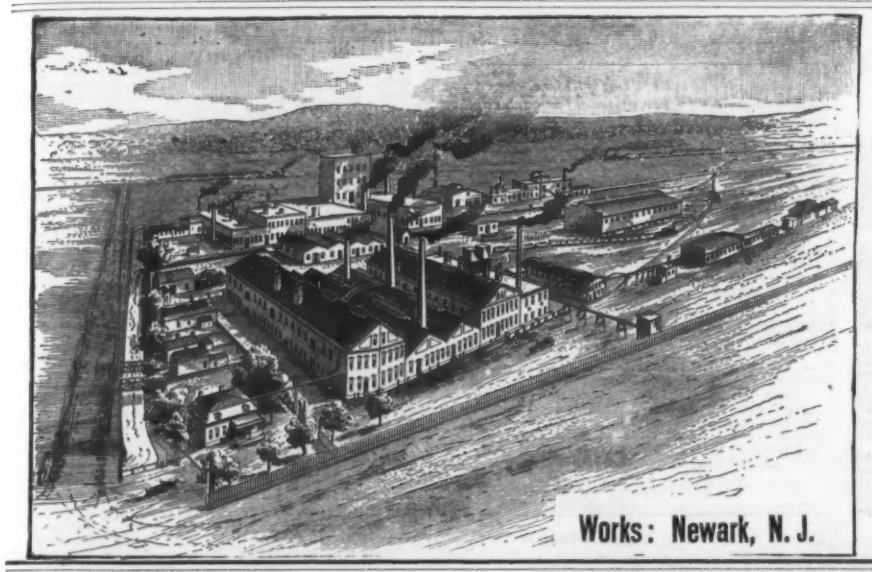
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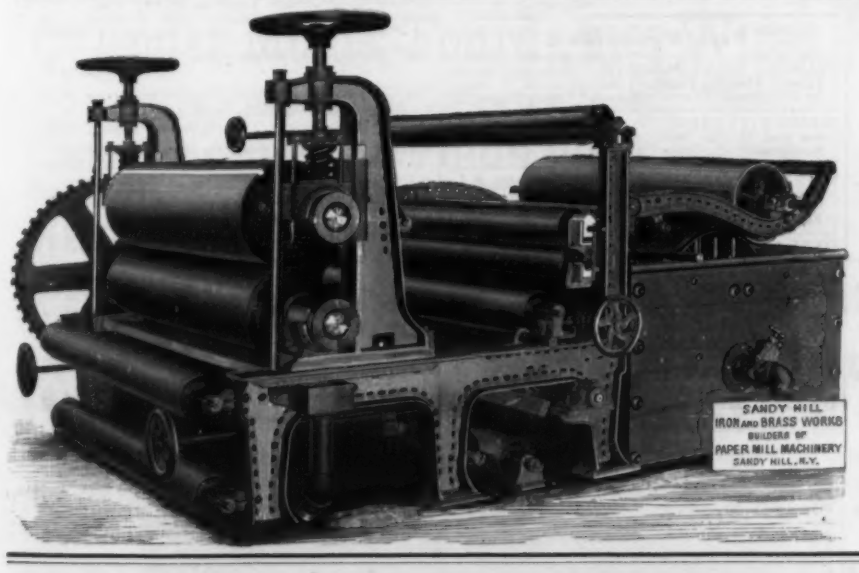

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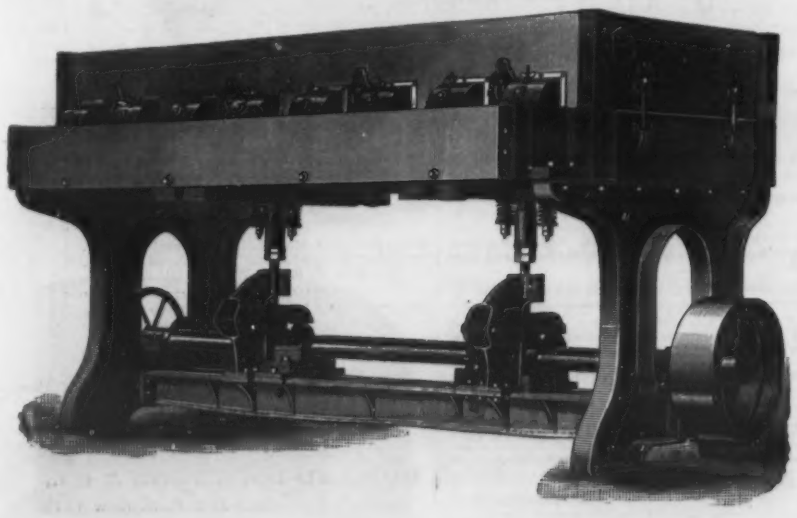

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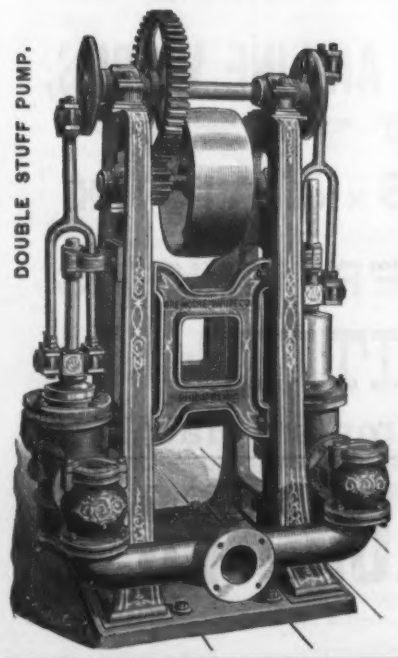

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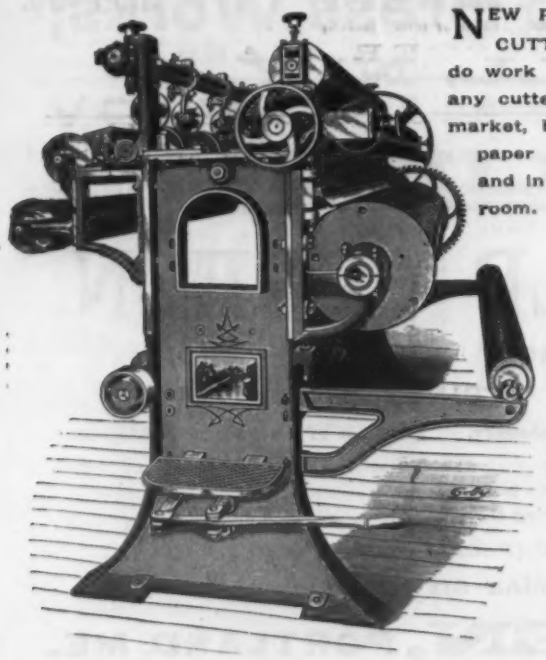

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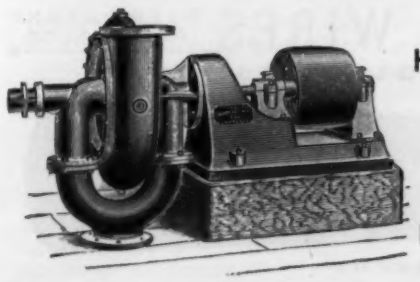

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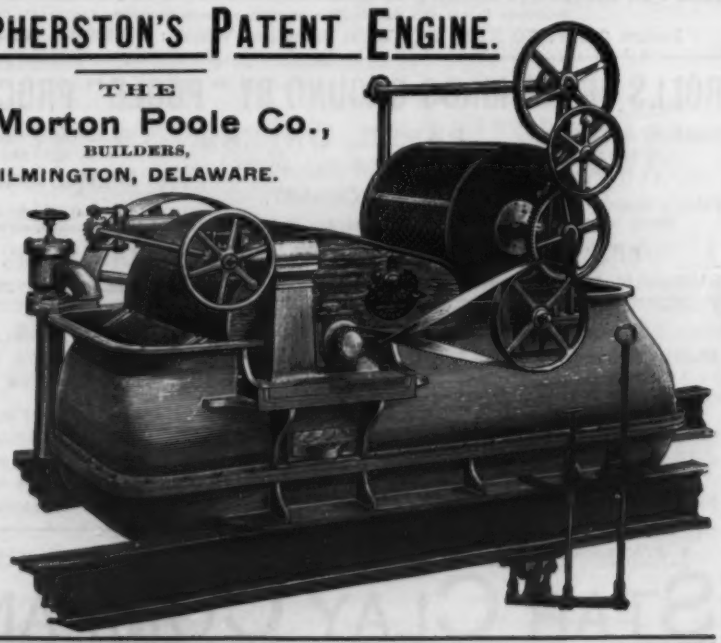

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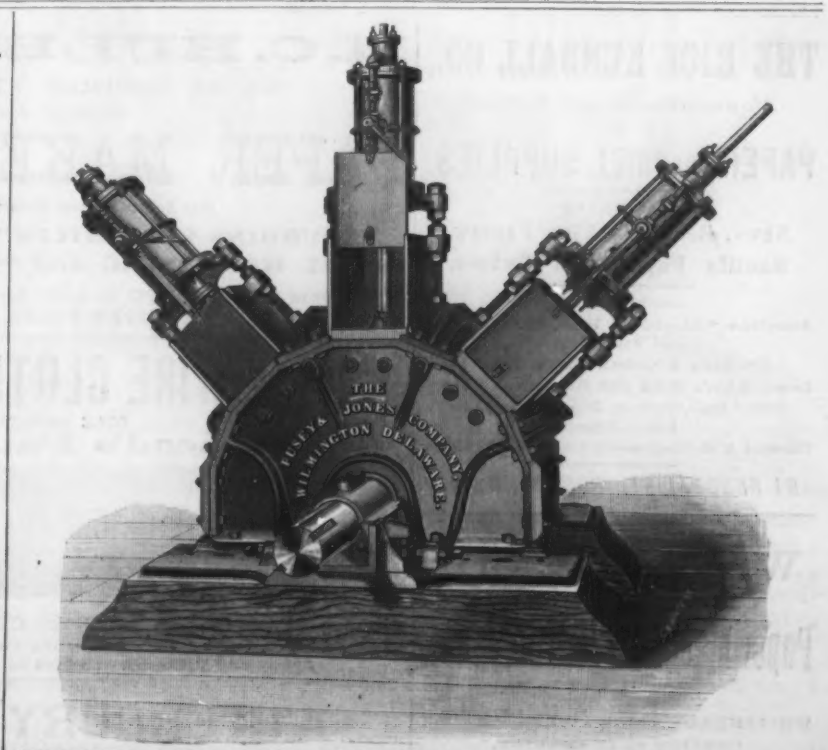

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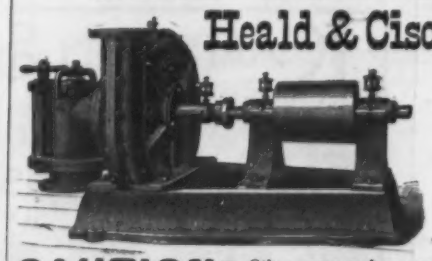

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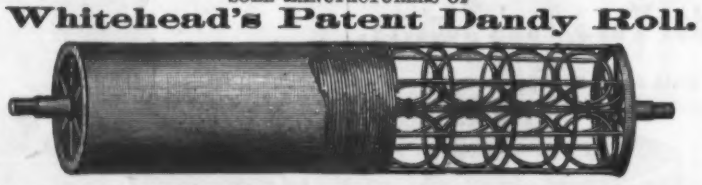

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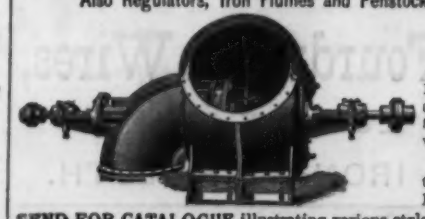

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